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ABSTRACT

Reported is a study of a preference input form as a means of obtaining input for incorporating advisory committee preferences into the planning process for water resource management. Two input forms were used at eastern and western Study Area Committee (SAC) meetings, for study area 8 of the Comprehensive Water Quality Management Plan (COWAMP) in northwestern Pennsylvania. Problems in organization and administration of the study were encountered and are discussed. Results indicate that the groups favored moderate management policies the most and that even though the groups ranked certain amenities desirable, those same amenities received moderate management policy ratings. (MR)

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PREFERENCE INPUT FORMS AS A METHOD OF OBTAINING FEEDBACK FROM CITIZEN ADVISORY COMMITTEES IN THE PUBLIC PARTICIPATION PROGRAM OF A WATER RESOURCES PLANNING STUDY

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A Thesis

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Science

by

Josephine Marquis Smith, B.A.

The Ohio State University
1976

BEST COPY AVAILABLE

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SE 022 858

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CHAPTER I

INTRODUCTION

A. PREFACE

The concept that citizens should have a voice in government decisions is fundamental in a democracy. It is a tradition which goes back to this country's earliest history.

However, as the functions of government have multiplied and become more complex, and as decisionmaking has become more and more dependent on technical expertise, specialization, and professionalism, it has become increasingly more difficult for members of the public effectively to make their wishes known regarding the governmental decisions which will affect their lives (Cahn, 1971, p. 9).

In response to this situation, many governmental units have made attempts to offer citizens new avenues to participate in government decisions. The Urban Renewal Program administered by the Department of Housing and Urban Development was probably the first major Federal program to emphasize citizen participation (Warner, 1971, p. 70). The Economic Opportunity Act of 1964--the touchstone legislation of President Lyndon B. Johnson's anti-poverty program--introduced the principle of "maximum feasible participation" (Galt, ODNR, 1974, p. 1) and ushered in the current era of public participation which has now become part of many pollution control programs (Davis, 1973, p. 1).

Public participation has become a part of many natural resources management planning programs, particularly in water resources planning. Case studies indicate that the earliest attempts to involve citizens in natural resources management planning decisionmaking on a large scale occurred in the early and middle 1960's (Bishop, 1970; Ross, 1974; Warner, 1971).

The type of public participation with which this thesis project deals is "an organized set of activities which serve to establish functional communication between the planner and the many 'publics' so as to most efficiently transmit information which is pertinent to the particular stage of the planning process and which will elicit feedback on perceptions of needs and preferences for plans" (Bishop, 1970, p. iii, emphasis added).

The organized activities to which Bishop refers are called public participation strategies, techniques, and mechanisms. Among them are: public meetings, citizen advisory committees, workshops, seminars, task forces, attitude surveys, personal interviews, citizen representation on policy boards, use of an ombudsman, and a variety of educational and communications techniques designed to disseminate information so that the public will have knowledge on which to base preferences.

The particular arrangement or mix of these types of techniques used in any given planning process is known as a public participation program.

B. IMPORTANCE OF THE PROBLEM

Although public participation techniques can provide a broad framework for public participation, the use of such strategies does not necessarily mean that the participants' desires will be accurately transmitted back to the planner or that they will be transmitted in such a way that the public preferences are meaningful and useful to the planner.

The citizen advisory committee--one of the more frequently used public participation techniques and the focal point of this thesis project--provides a case in point. Some of the most commonly employed methods of feedback from committee to planners are: 1) personal observation by a member of the planning staff, 2) a third party report such as minutes or a meeting summary, 3) majority voting, and 4) written comments from committee members.

However, the effectiveness of each of these methods has been questioned.

Personal observation by a member of the planning staff--although it tends to increase mutual understanding (Ertel, 1974, p. 88)--may still result in incomplete feedback. For instance, which, if any, spokesman at a meeting is best expressing the preferences of the entire group? Is it the person who speaks the most often, the person who dominates the meeting in various ways, the person who is the most articulate, the person who appears to have the highest status within the committee (Delbecq, 1975, pp. 24-26)?

Use of the third party report (minutes or meeting summaries) raises all of the questions stated immediately above plus the additional question, "can a third party accurately report a meeting?" One study of several advisory committees has indicated that committee members "did not feel that the circulation of the minutes of their meetings was a sufficiently clear or persuasive channel for communication of their views" (Ertel, 1974, p. 88).

In cases of majority voting, especially when the vote was public, were some committee members subjected to social pressure from other group members (Delbecq, 1975, p. 56)? In addition, when majority voting is used, the planner may consider only the final result which creates a situation in which the minority position is essentially lost (Delbecq, et al., 1975, p. 56).

Input as written comments from committee members also raise questions. How much chance is there for misinterpretation? What about the feelings of those committee members who cannot express themselves well in writing or who did not have or take time to prepare comments? When committee or sub-committee reports are used, do the reports really reflect the feeling of the committee or do they mainly reflect the opinion(s) of the report writer(s)?

Questions associated with each feedback method thus far discussed indicate that there are problems associated with each. Clearly, if the planner is unable to perceive public preferences, the planner cannot even attempt to incorporate the preferences into the plan. Therefore, if there is no meaningful feedback to the planner, there has been no effective public participation.

The critical query then remains: Are there more effective ways for a planner to assess preferences from a citizen advisory committee than those commonly in use as listed above?

This project is a study of the use of a different type of mechanism--the written preference input form--to obtain feedback from citizen advisory committees in an attempt to minimize the problems associated with some of the aforementioned methods of obtaining committee feedback.

Earlier objectives of the thesis project included study of several types of input mechanisms. However, severe time constraints, schedule slippages, and procedural changes of the planning study under investigation dictated that only one input mechanism be investigated.

The advisory committee under study was the Study Area Committee (SAC) for Study Area 8 of the Comprehensive Water Quality Management Plan (COWAMP) in northwestern Pennsylvania.

C. STATEMENT OF THE PROBLEM

Do two preference input forms used for the Study Advisory Committee (SAC) in COWAMP Study Area 8 provide a method of obtaining meaningful and useful input for the planner as a means for incorporating advisory committee preferences into the planning process?

D. THE SETTING

1. COWAMP

The Comprehensive Water Quality Management Plan (COWAMP) for the Commonwealth of Pennsylvania is an "effort to establish a sound, long range basis for water quality management for the protection of Pennsylvania's waters. The planning effort involves carrying out. . . studies which will determine methods to be implemented for the enhancement of surface and groundwater quality through the state" (DER [Department of Environmental Resources], Study Specifications, p. 1).

> The COWAMP study will encompass municipal and industrial wastewater collection, conveyance, treatment and disposal, abatement of combined sewer and agricultural pollution, maintenance of groundwater quality, acid mine drainage, and the disposal of sludges and other process by-products. It will inventory and define the pollution problem posed by each activity, identify the engineering, management, institutional and financial alternatives and recommend an implementable program to achieve water quality and environmental objectives in the study area (DER, Study Specifications, p. 1).

COWAMP was created in response to both Federal and state legislative mandates.

The most important Federal legislation includes: the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), particularly sections 106, 107, 201, 204, 208, 301 (b), and 303 (e), 401, and 505; the Safe Drinking Water Act (PL 93-523); the National Environmental Policy Act (PL 91-190); and Title II of the Water Resources Planning Act (Green, August 1975, II-S-5).

State legislation to which COWAMP responds includes: the Pennsylvania Clean Streams Law, the Pennsylvania Solid Waste Management Act, and the Pennsylvania Sewage Facilities Act (Green, August 1975, II-S-4). In addition, COWAMP will provide the water quality and wastewater elements of Pennsylvania's State Water Plan which will be implemented under policy requirements and guidelines established by the Pennsylvania General Assembly (DER, 1975, p. viii).

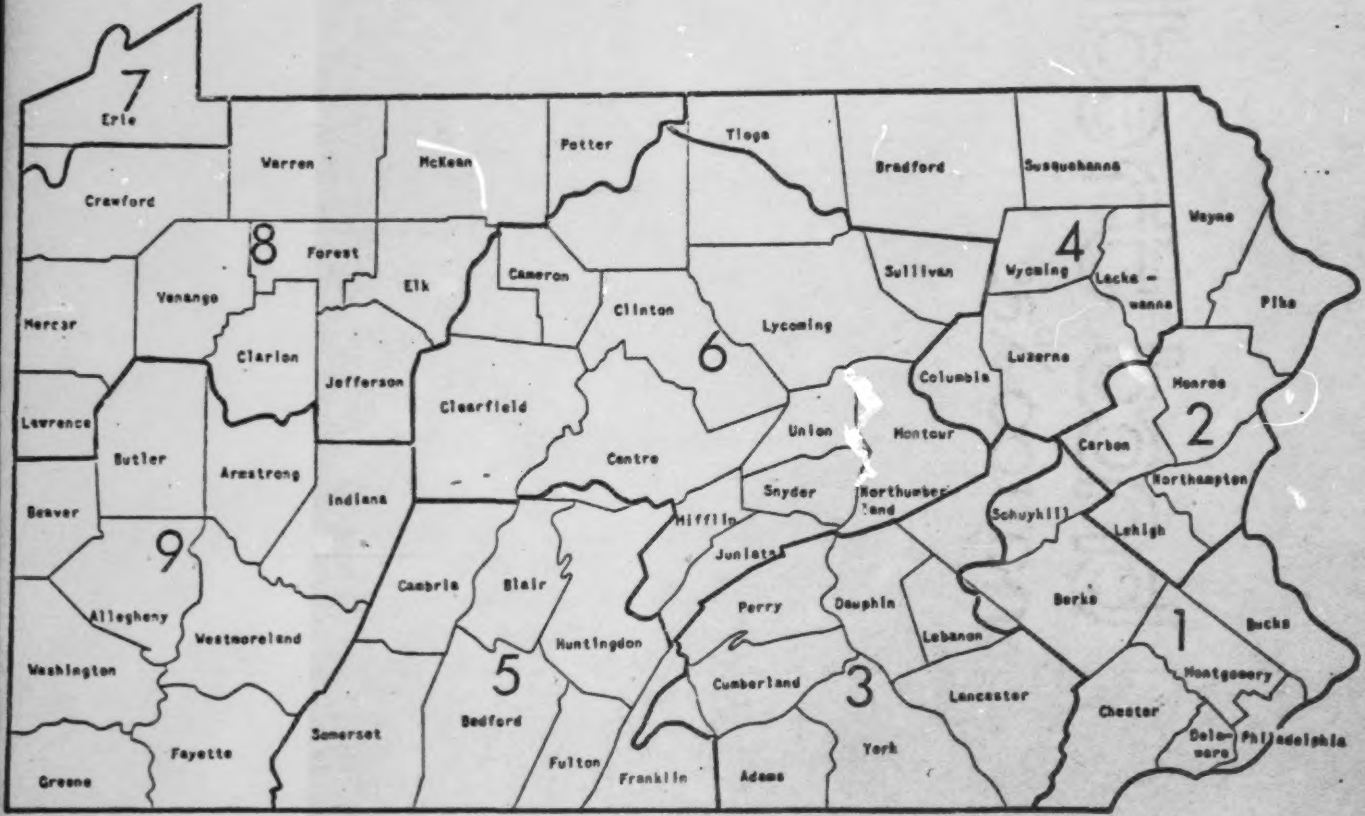
The study sponsor for COWAMP is the Pennsylvania Department of Environmental Resources (DER). The actual plans are being developed by private consulting firms termed study consultants (DER, Study Specifications, pp. 3 & 5).

The study consultant for the study area under consideration for this thesis project is Green International, Inc., of Sewickley, Pennsylvania which has planning responsibilities for COWAMP Study Area 8 (Figure I-1).

COWAMP recognizes the critical relationship between water quality management and other areas of environmental quality and attempts to determine how water quality management can be used to enhance overall

Figure I-1

LOCATIONS OF COWAMP STUDY AREA


7
Erie
Crawford
Warren
McKean
Potter
Tioga
Bradford
Susquehanna
Wayne
8
Forest
Venango
Mercer
Elk
Cameron
Clinton
Lycoming
Sullivan
4
Wyoming
Lacka-wanna
Pike
Clarion
Jefferson
Clearfield
6
Columbia
Luzerne
Monroe
2
Lawrence
Butler
Armstrong
Indiana
Centre
Union
Montour
Carbon
Northampton
Snyder
Northumberland
Schuylkill
Lehigh
Beaver
9
Mifflin
Juniata
Allegheny
Cambria
Blair
Perry
Dauphin
Berks
1
Bucks
Westmoreland
Huntingdon
Lebanon
Washington
5
Cumberland
3
Lancaster
Montgomery
Bedford
Chester
Somerset
Fayette
York
Dela-ware
Philadelphia
Greene
Fulton
Franklin
Adams

GREEN INTERNATIONAL INC.

environmental quality, as noted below:

> COWAMP is based on the premise that a viable water quality management plan must be interfaced with other plans--e.g., land use and socio-economic--to properly function as part of an overall environmental design (Bartal and Gutierrez, p. 1).

One of the important methodologies used in developing COWAMP is alternative environmental futures (AEF's). As a first step in the alternative environmental futures methodology, an environmental inventory identifying areas which are environmentally sensitive or unique as well as those which are environmentally degraded was compiled.

> The environmental inventory will form the basis for postulating alternative environmental futures. In each future, objectives and policies for determination will then be made of the extent and type of development that can be accomodated within these objectives and policy limits. Finally, alternative water quality management plans will be developed, evaluated and selected for each of the futures so that final plan selection will in fact actually be the selection of a paired set consisting of an environmental future and a plan specifically designed to meet the overall objectives of that future (Bartal and Gutierrez, p. 18).

Within this general framework, the members of each COWAMP Study Consultant staff are developing a specific AEF methodology for use in their Study Area. The AEF process for Study Area 8 as proposed by Green International, Inc. is included herein as Appendix A.

The process calls for creation of scenarios based on the interaction of policy alternatives (also called policy parameters) falling into two categories: 1) policies for environmental factors and 2) policies for development factors. The environmental parameters will be based on policies for managing Areas of Critical Environmental Concern (also called Environmental Amenities) identified in the environmental inventory described above. The development parameters will be based on:

a) levels of development (more, less, or static population and employment),

b) distribution of development (dispersed or concentrated), and

c) activity structures (more or less production from key industries identified as agricultural, mining, steel, chemical, energy production, and outdoor recreation).

Several AEF scenarios will be created by combining various policy parameters. The scenarios will then be evaluated according to their impact on environmental quality and socio-economic values. Through an iterative process, the scenarios will be revised. Finally, one or two scenarios will be selected as representing the alternative environmental futures which will form the bases for design of the water quality management plan.

The Study Area 8 AEF methodology calls for input from the public throughout the process of formulating alternative environmental futures.

Most of this input in Study Area 8 comes from citizen advisory committees. Three such committees have been organized in the Study Area: 1) a Policy Advisory Committee (PAC) consisting of representatives of local, state, and interstate agencies, 2) a Technical Advisory Committee (TAC) consisting of technically oriented persons from the agencies and organizations participating in the study, and 3) a Study Advisory Committee (SAC) which "is the chief vehicle for obtaining input and comments from official agencies, industries, and voluntary organizations such as civic associations, sportsmen and conservation groups, etc.," (DER Study Specifications, p. 4).

This thesis project considered input from the Study Advisory Committee.

2. THE SAC's

Because of the Study Area's large size, it was decided to organize two Study Area Advisory Committees--an Eastern SAC and a Western SAC. Both SAC's were organized in summer 1975.

The members of the committees were not and have not been officially appointed. Rather, names were selected by the staffs of the two Area Planning Organizations (APO's) in the Study Area, the Northwestern Pennsylvania Regional Planning and Development Commission and the North Central Pennsylvania Regional Planning and Development Commission, from a previous mailing list.

Those persons whose names were selected were invited to participate in SAC meetings. In addition, any other interested persons in the Study Area were encouraged to attend and to participate. Therefore, on any given meeting date, the SAC's consisted of those persons in attendance plus those persons who were absent but whose names were on the SAC mailing lists.

As of June 1976 there were 80 names on the Eastern SAC mailing list and 100 names on the Western SAC mailing list.

Attendance at Eastern SAC meetings has been between 10 and 20. Attendance at Western SAC meetings has been between 20 and 30.

Both SAC's voted not to elect a chairperson from their membership but instead to ask members of the APO staffs to act as non-voting chairperson/moderators.

The first SAC meetings were held in August 1975. The second, third, and fourth SAC meetings were held in October, November, and February. Business of the first meeting was to organize the committees and to present basic information regarding COWAMP. At the October and November meetings, the committees reviewed COWAMP Chapters II ("Introduction") and V ("Existing Population, Economy and Land Use"), respectively.

The Chapter review process consisted of written and oral comments consisting mainly of suggestions for grammatical and organizational improvements. The comments are to be incorporated and/or noted as the chapters are being revised. The Study Consultant responds verbally to all comments at the meeting following the meeting at which the comments are made.

The February meeting agenda included not only a review of Chapter IV ("Environmental Characteristics of the Study Area") but also a slide presentation and administration of the preference input forms. A more complete description of the February meeting appears in Chapter III.

Prior to each SAC meeting, executive summaries of the chapters are sent to those on the mailing lists. In addition, other explanatory material is mailed when deemed necessary by the Study Consultant.

CHAPTER II

REVIEW OF RELATED LITERATURE

A. INTRODUCTION

A citizen advisory committee (CAC) is but one component of a public participation program. However, it is a particularly important component. Since a CAC functions during most or all of the duration of a planning study, it can be viewed as a microcosm of the public participation program. Many of the considerations a planner makes in structuring and managing the public participation program are taken into account in smaller and more refined ways when the planner assists with selection of the CAC and then determines methods by which the committee can contribute to the plan as the planning process goes on.

Therefore, gaining an understanding of public participation in general is a prerequisite to further study of citizen advisory committees. This chapter, then, describes the literature related to public participation in detail.

B. PUBLIC PARTICIPATION DEFINED

Public participation has been defined in a general sense as "those types of activities undertaken by members of the public to influence the decisions made by government officials" (Warner, 1971, p. 2), or the public "having a voice in decisions that affect us" (Verba as quoted in Warner, p. 20), or "any activity through which members of society who are not formally engaged in the planning and management of . . . programs can take part in planning and decision-making events" (Ross, *et al.*, 1974, p. 3).

When defined in this kind of broad form, public participation might be anything from casting a vote at the polls to marching in a demonstration.

However, public participation as it is being studied for this thesis project is much more specific. It is "an *organized set of activities* which serve to establish functional communications between the planner and the many 'publics' so as to most efficiently transmit information which is pertinent to the particular stage of the planning process and which will elicit feedback from publics on perceptions of needs and preferences for plans" (Bishop, 1970, p. iii, emphasis added).

Moreover, "'. . .the primary responsibility for (accomplishing) effective public participation is the government's, not the citizen's'.. (Widditsch, 1972:79). It might also be added that the primary responsibility for insuring participation that is representative of all affected and interested publics also rests with the government agency" (Ross, *et al*., 1974, p. 3).

Public participation, then, as considered herein, is *an organized activity* and *the responsibility of the planning agency*. It is not a situation in which the public must make the first step or fight and plead to be heard.

Many other definitions in the literature further explain the type of public participation with which this thesis is concerned.

Sherry Arnstein, discussing public participation in the anti-poverty program, identified the term as "the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future. It is the strategy by which the have-nots share in determining how information is shared, goals and policies are set, tax resources are allocated, and benefits. . .are parcelled out" (Arnstein quoted by Cahn and Passett, 1971, p. 72).

Participants in two conferences examining issues related to public involvement in planning for transportation needs developed this definition:

> . . .an open process in which the rights of the community to be informed, to influence and to get a response from government are reflected and in which a representative cross section of affected citizens interact with appointed and elected officials on issues of transportation supply at all stages of planning and development. The participants in the process identify and examine all reasonable alternatives and their consequences to assist the appropriate decisionmakers in choosing the course that they believe to be needed and they feel will best serve the needs and objectives of the community (BLM, 1975, p. 26).

According to the Bureau of Land Management:

> Meaningful public participation is defined as a dynamic process in which the public have a right to influence. . . decisionmaking. Components of a public participation process may be designed to inform, to educate, to collect data, etc. but the process as a whole does not become meaningful until the public has had an opportunity to take their part in shaping the decision (BLM, 1975, p. 45).

Manty, et al., in a paper prepared for a UNESCO conference on water resources education identified public participation as:

> . . .the two-way interaction between community members and decisions makers. These decision makers, in turn, fully consider and incorporate these citizen comments into their decision making process when possible. If functioning properly, the decision makers provide the information to the community and the community provides input to the decision making process (Manty, et al., 1975, p. 3).

Agency initiated public participation programs as considered for this thesis project were summed up by Ross, et al., when they wrote:

> Public agencies have traditionally recognized their responsibility to inform the public as "inherent in their roles as public institutions" (Warner, 1971:21). Added emphasis and new definitions have transformed the educational function of public agencies in recent years as the public has asserted its "right to know" and "right to be heard." The transition of the role of the public from that of informed observer to citizen participant has, concomitantly, changed the role of public agencies from that of representing and informing publics to that of educating publics and coordinating their involvement in agency programs (Ross, et al., 1975, p. 6).

C. PUBLIC PARTICIPATION TECHNIQUES, STRATEGIES, AND MECHANISMS

Methods used to obtain public participation are referred to in the literature as public participation techniques, strategies, or mechanisms.

Warner listed several techniques and classified them into three functional orientations as follows:

Techniques Performing the Education/Information Function
- Newspaper Articles
- Radio and TV Programs
- Speeches and Presentations to Organized Groups
- Field Trips
- Exhibits
- School Programs
- Films
- Brochures
- Newsletters
- Reports
- Letters
- Conferences

Techniques Performing the Review/Reaction Function
- Public Hearings
- Survey Questionnaires
- Public Inquirer
- Public Meetings

Techniques Performing the Interaction/Dialogue Function
- Workshops
- Special Task Forces
- Interviews
- Advisory Boards
- Informal Contacts
- Study Group Discussions
- Seminars
- Charettes (Warner, 1971, p. 49)

Manty, *et al.*, (1975, p. 11) identified 23 public participation techniques in six categories for communicating with and involving the public. They are:

- Large Group Meetings
  - Public Hearings
  - Public Meetings

- Small Group Meetings
  - Presentations to Community Groups
  - Field Trips and Site Visits
  - Advisory Body
  - Task Force
  - Gaming and Role Playing Exercises
  - Values Clarification Exercises
  - Workshops and Seminars
  - Delphi Exercises

- Organizational Approaches
  - Regional and/or Local Offices
  - Citizen Representation on Policy Boards
  - Ombudsman and Community Advocate
  - Public Interest Center

- Media
  - Information Pamphlets, Brochures, and Summary Reports
  - Slide and Film Presentations
  - Tape Recorded Information Network
  - Radio Talk Shows
  - Press Releases and Newsletters

- One-to-One Communications
  - Reponse to Public Inquiries
  - Attitude Surveys--Mailed, Telephone, and Personal Interviews

- Legal Mechanisms
  - Citizen Suits
  - Environmental Impact Review Statement

The public hearing is found in all lists of public participation techniques and appears to be the technique which has been in practice the longest. However, the literature appears to be in agreement that the public hearing, particularly when it is not used in conjunction with other techniques, is a poor public participation method:

> The very nature of the hearing itself lends to its inadequacy. Arnstein (1969) is of the opinion that this type of meeting can often "be turned into a vehicle for one way communication by the simple device of providing superficial information, discouraging questions, or giving irrelevant answers." Another factor which contributes to the defeat of the hearing's purpose has been its degree of formality. Often this has done much to discourage, restrict, or eliminate participation by or discussion among those in attendance. Lastly, the hearing does not provide a means for participants to judge what effect their testimony has on the issue. Consequently, a negative attitude and a feeling of mistrust develops. Inviting citizen's opinion. . .can be a legitimate step toward their full participation. But if consulting them is not combined with other modes of participation. . .it offers no assurance that citizen concerns and ideas will be taken into account (Bishop, 1970, p. 59).

D. PUBLIC PARTICIPATION PROGRAMS

A combination of public participation techniques, strategies, and mechanisms constitutes a public participation program. "There are no hard and fast 'best' procedures for structuring public participation. Those arrangements which work most effectively depend to a great extent on the specifics of a given situation. . ." (Warner, 1971, p. 7).

"Planning is a dynamic process and it should be emphasized at the outset that there are no pat answers. . .for getting participation and input from concerned citizens and interest groups in the planning process" (Bishop, 1970, p. iv).

Warner, Ross, *et al.*, and a team at the Battelle Columbus Laboratories have each produced a planning model to be used as a guideline in structuring a public participation program.

Warner recommended that before a planner selects what public participation strategies he/she wishes to combine into a public participation program that the planner: 1) define objectives, 2) choose the publics who are going to be involved in the program, and 3) determine at what point in the planning process public participation will be useful.

Once those three tasks have been completed, Warner recommended that the planner divide the resources planning process into seven phases and that he/she use certain functional types of public participation techniques during each phase. (The techniques according to function have been presented in Section B of this Chapter.)

In Phase 1 of the planning process--defining goals and objectives--Warner (1971, p. 40) identified interaction/dialogue techniques as being "of key importance. . .to ensure that the planning effort will be directed toward achieving ends desired by the public and toward solving 'real' public concerns" (Warner, 1971, p. 40). She also stressed use of education/information techniques as being important so that public concerns are not expressed in a vacuum and that the public have information on which to base their suggestions regarding what goals of the project being planned should be.

During Phase 2 of the planning process--detailed studies and data collection--Warner (1971, p. 4) suggested that a steady flow of education/information techniques should be used to help prevent the study from becoming "invisible" and that some interactive/dialogue techniques be employed to obtain information not otherwise considered which might be turned up by the public and to see that the implications of the data can be discussed with the public.

In Phase 3--identification of alternatives--Warner (1971, p. 43) gave priority to interaction/dialogue techniques saying, "At this point, public input to the planning study efforts in the form of suggestions and an active exchange of viewpoints about appropriate constraints, priority concerns, and possible implications is vital in terms of broadening the range of alternatives considered and of developing a better understanding of the relative feasibilities. . ."

Phases 4 and 5--evaluation of alternatives and choosing among alternatives--should be linked by all three functions (information/education, interaction/dialogue, and public review/reaction) in Warner's plan (1971, p. 44). First, fairly detailed descriptive information on the alternatives should be disseminated so that the public has information to which it can react. Then:

> . . .both the review/reaction and interaction/dialogue functions should receive major public involvement program emphasis. The public review/reaction phase should provide the agency with a definite indication of people's preference patterns and the relative intensities of these among different publics. Opportunities should be provided for people to clearly articulate their reasons for preferring or proposing different types of management measures in a form in which they can later be used as criteria when the planning agency decides what alternatives it believes preferable and frames its preliminary plan recommendations. In addition, this stage should also include adequate opportunities for public-planner dialogue and for interactive discussions among various publics regarding their respective agreements and disagreements about preferred alternatives. These should provide a better chance to clarify the implications of various choices and to work out some mutually satisfactory accomodations. Such public involvement opportunities should also increase people's understanding of each other's positions (Warner, 1971, p. 45).

In Phase 6 the planning agency announces its choice among the alternatives. At this point, the review/reaction function techniques should be used according to Warner (1971, p. 46). Traditionally, the public has reacted at this phase through the public hearing. "However, as a mechanism for public involvement, hearings have some distinct disadvantages, e.g., excessive formality, mainly one-way communication flow, etc." (Warner, 1971, p. 46). In Warner's opinion, other forms of obtaining the public's reaction in Phase 6 should be sought. Among her suggestions are public forums and workshops.

In Phase 7--final plan presentation--Warner (1971, p. 48) recommended that the education/information function techniques be utilized so that the various publics could understand the plan. She also emphasized that this Phase should be open-ended since continued interest and activity from the public is needed in order to achieve significant plan implementation.

The Ross et al. model is reproduced herein in full as Figure II-1.

Battelle-Columbus Laboratories has developed a "systematic approach to investigate alternative techniques and to design programs of citizen involvement in resource planning, management, and decision making" (Battelle, 1974, p. 2).

The Battelle study began by asking a number of questions which a planner might wish to consider before attempting to devise a public participation program. Included in the questions are:

> What are the basic objectives of public participation in resource planning?
>
> Who are the relevant "publics," and how should they be involved?

FIGURE II-1

Planning Model

Pre-planning Phase

1. Initiation of formal contacts and conferences with relevant local, state, and federal agencies in order to establish coordinative relationships and to elicit views regarding water problems, needs and goals.

2. Identification of key public and private organizations, agencies, and individuals that should be included in workshops and/or on committees.

3. Publication of announcement regarding the impending study via the media.

Identification and Definition of Problems, Needs, and Goals

1. Initiation of intensive efforts to educate interested publics regarding the planning process to enable them to identify and define water problems, needs, and goals by use of small group conferences, workshops, seminars, or committee meetings.

2. Initiation of informational programs to provide basic information regarding water resources planning and to elicit feedback regarding publics' perceptions of water problems and needs, to be accomplished through a questionnaire survey followed by (or preceded by) an informational brochure or by use of a mail-response informational brochure.

3. Release of an announcement to the media regarding the purpose of the impending public meeting.

4. Public meeting to present to the general public the suggestions and views of publics and planners obtained to date and to solicit additional feedback.

5. Media coverage of the public meeting.

Identification of Alternative Solutions

During the collection of preliminary data by the agency regarding resources, alternatives, and impacts:

1. Workshops (or other work committees or groups being utilized) to educate publics to enable them to participate in identifying solution alternatives and their impacts.

2. Preparation and distribution of general and more detailed printed summaries of alternatives and impacts.

3. Release of an announcement to the media regarding the purpose of the impending public meeting.

From Ross, 1971, et al., pp. 34 and 35

4. Public meeting to discuss alternative solutions identified and their impacts and to solicit additional feedback.

5. Media coverage regarding the public meeting.

Evaluation of Alternative Solutions and Tentative Decision

During the preliminary studies conducted by the agency to identify the most viable alternatives:

1. Workshops (or committees, etc.) to evaluate viable alternatives and to tentatively select an alternative for detailed study.

2. Preparation and distribution of general and more detailed summaries of evaluations of alternatives and rationale for the tentative decision.

3. Release of an announcement to the media regarding the purpose of the impending public meeting.

4. Public meeting to review the evaluation of alternatives and their impacts and the rationale for the tentative decision regarding the solution to be studied in depth.

4. Media coverage of the public meeting.

Detailed Study and Final Report

During the detailed study by agency personnel of the alternative selected:

1. Preparation and distribution of progress reports or newsletters regarding progress of the study.

2. Workshops (or committee meetings, etc.) to discuss findings and tentative recommendations.

3. Preparation and distribution of general and more detailed summaries of the study and tentative recommendations prior to the public meeting.

4. Release of an announcement to the media regarding the purpose of the public meeting.

5. Final public meeting to present the study findings and recommendations.

6. Media coverage of the public meeting.

7. Publication of the final report, distribution to participating agencies, organizations, and individuals, and announcement of its availability.

From Ross, 1971, et al., pp. 34 and 35

> What information should be communicated between planner and public in resource planning?
>
> What techniques should be used to elicit specific publics' participation and involvement, and how should these various techniques be structured into a complete community involvement program?
>
> How should pertinent information and projected alternative futures be organized and displayed to solicit the publics' value judgements on their relative significance?
>
> How should the specific publics' community values be identified, and how should we evaluate the relationship between alternative resource development plans and the articulated values and objectives of the community? (Battelle, 1974, pp. 2 & 3)

The remainder of the Battelle study provided a context "for considering these questions in organizing and structuring effective community involvement programs for resource planning." (Battelle, 1974, p. 3)

Task One is to define public involvement requirements, objectives, and techniques. As a part of this task the planner should determine the legal requirements for public participation in his agency, formulate the objectives of his public participation program, decide how sophisticated a program is warranted for the particular plan on which the agency is working, become familiar with available public participation techniques, and finally, to develop criteria for deciding which techniques should be used (Battelle, 1974, pp. 3-8).

Regarding developing these criteria, Battelle, suggested an approach similar to Warner's in which public participation techniques are characterized according to functions. Functions identified are: information dissemination, review of proposals, interchange of information, and resolution of issues (Battelle, 1974, p. 8).

Task Two is to determine effectiveness of community involvement techniques to inform the public, reflect community values, and minimize impacts.

Part of this task is finding means to measure community values and needs as they relate to environmental problems. "These values and needs, and their differences among community subgroups, are bases for determining community representation in the planning process." (Battelle, 1974, p. 9)

Another segment of Task Two deals with the problem of how the planner can incorporate community values into his planning process, particularly at the point of identifying and communicating to the public the alternatives in a resource development plan. This section stresses the importance of communicating to the public the existence and impact of alternatives in such a way that the alternatives are directly compared, summarizing the alternative impacts in an understandable form, highlighting pivotal issues for decision making, and description of the alternatives in sufficient detail to enable independent public judgement of their validity (Battelle, 1974, pp. 8-10).

Battelle (1974, p. 10) emphasized the importance of communication saying that regardless of "how it is designed, a public participation program must ultimately be evaluated on its ability to foster communication between planners and various publics. The essential objectives of this process are to inspire participation by the public and to provide a clear understanding or image of the problems to be resolved."

Task Three is to evaluate appropriateness of techniques and identify institutional barriers to their effective implementation at various resource planning levels.

In this task the specific public participation techniques are evaluated and chosen according to the objectives which were formulated in Task One. It was pointed out that to "maintain contact with the public, an effective community involvement program should have at least the following three characteristics: (1) actively seek a comprehensive and representative range of public interests by providing as many diverse access points as possible, (2) maintain as much flexibility as possible in moving toward a plan or recommending one so that real alternative choices are available to the community, and (3) document the planning process effectively so that a changing public group can have full access to past and present information." (Battelle, 1974, p. 13)

E. CHOOSING THE PUBLIC

As has been pointed out in Section C, models exist to be used as guidelines for organizing a public participation program, but each program must be tailored to the planning process for which it is being used.

One task, however, is present in each model. That is the task of deciding who the public is for purposes of the public participation program.

The Bureau of Land Management (1975, p. 67) in a public participation training session handbook cautioned field personnel not to confine their ideas of the public to their familiar user groups and said, "Any given community is a much more diverse and complex social system that just the sum-of-the-parts from adding up user groups. A comprehensive understanding of the community as a whole and sophisticated approaches are necessary in order to construct an accurate picture of community values, attitudes, needs and interest."

Bishop (1974, p. 44) suggested that two groups constitute the public. They are elected officials and members of the community.

Manty, et al. also classified the public as falling into two major groups:

> People who are not connected in any direct way with the various forms of environmental action or control. Citizens, professionals, and public officials who are directly involved with environmental action or control (Manty, et al., p. 2).

These categories were then further broken down by the authors into seven sub-groups which are:

> Concerned private citizens -- average laymen
> Voluntary citizen groups
> Private industry organizations
> Professional groups
> Environmental health associations
> Staff of state and local environmental agencies
> Publicly elected officials such as mayors, trustees, commissioners, etc. (Manty, et al., p. 2)

Warner (1971, pp. 27-29) has gone into more detail on the subject of identifying publics. She outlined several factors which should be considered as a planner approaches the task.

The first factor to be considered is the type of interest group which Warner categorized into two types--those groups which are economically concerned and those groups which are environmentally concerned.

The second factor to be considered is the degree to which the interest groups are organized because it is easier to channel communications to organized groups.

The third factor to consider is the extent to which people are or think they are going to be affected by the plan.

The fourth factor is the area of scope of the interest groups.

Groups, postulated Warner, with a more inclusive membership base or stated interest in general affairs may provide a broader perspective than groups with narrowly focused interests.

Warner also discussed the concept of opinion leaders, persons who "assume the role of key communication linkages with regard to information disseminated via the mass media and through official government and private organization channels" (Warner, 1971, p. 30). Because of the influence public opinion leaders have, Warner suggested (1971, p. 30) they be included in the design of any public participation program.

Two other publics are also identified by Warner (1971, p. 31). They are other government agencies and elected public officials.

In summary, then, Warner suggested four publics:

Special interest groups falling into one of two categories, those who are economically concerned and those who are environmentally concerned

Opinion leaders

Government agencies

Elected public officials

F. GENERAL FACTORS WHICH CONTRIBUTE TO A SUCCESSFUL PUBLIC PARTICIPATION PROGRAM

There appears to be general agreement in the literature that several factors are major contributors to a successful public participation program:

1. Involving the public at the earliest stage of planning is essential. True public participation does not take place unless there is two-way communication--real interaction and dialogue--throughout the entire

planning process, including the very earliest phases (Ross, et al., 1974, pp. 2, 3, & 31; Warner, 1971, p. 9; Manty, et al., 1975, p. 33; OEPA, 1974, p. 7).

2. Providing the public with enough information in a form which is understandable to the public is mentioned again and again as being of extreme importance. The factors which go into environmental planning processes are technical, sophisticated, and complex. If the public is to have a rational basis on which to base its recommendations, then the public participants must understand all the factors involved including many factors which are considered to be on the technical side. It is, therefore, up to the agency to operate a massive "crash course" educational program for its public participants (Ross, et al., 1974, p. 4; Warner, 1971, pp. 40 & 41; Davis, 1973, p. x; Manty, et al., 1975, p. 46).

3. Another important factor is agency resources in terms of agency ability (including willingness) to respond to public input, money, staff time, and staff expertise in public participation matters. If the agency is unwilling or unable to make the necessary commitment to a public participation program, then such a program is almost certainly doomed to failure (Ross, et al., 1974, p. 32; Warner, 1971, pp. 182 & 183).

4. The planner must also understand that obtaining and maintaining public participation is not easy. Very often the members of the public are not even aware that a plan is being prepared and thus may not have the receptive mental set when asked to participate. Or the public may not feel its interest is going to be directly affected by a plan.

Moreover, the public--based on past experiences-- may feel that its input will be of little influence. Furthermore, public participation takes a high level of commitment in terms of time, emotional energy and often financial resources. Sometimes the public is reluctant to make the necessary commitment. The agency must find ways of motivating public participation by methods ranging all the way from a better general public information program to creating an artifical sense of crisis (Ross, _et al_., 1974, p. 2; Warner, 1971, p. 6; Davis, 1973, p. 2).

CHAPTER III

METHODS AND PROCEDURES

A. BACKGROUND

Input from the SAC's through their November meeting had consisted solely of reviewing draft chapters in the form of verbal and written comments. Executive summaries of the chapters were mailed to SAC members prior to meetings and written comments solicited. However, few written comments were submitted. At meetings short presentations were made on the chapters and verbal comments requested. Most of the comments, both written and verbal, were suggestions for mechanical changes in grammar, spelling, and punctuation. Since the chapters had consisted of factual material describing the Study Area, no value judgements or decisionmaking had been required from the SAC's.

However, this situation changed with the introduction of the concept of Environmental Amenities (also called Critical Areas of Environmental Concern) such as flood plains, critical recharge areas, steep slopes, degraded waters, and scenic areas which would require special consideration in developing management plans for the Study Area. Much of the preparation of the Alternative Environmental Futures (AEF's) would require trade-offs both among the various Critical Areas and among those Areas and development objectives.

At the November meeting a summary description defining the Amenities was distributed to the SAC's and sent to other persons on the SAC mailing list.

Following the November meeting, the Study Consultant and the investigator met for four days to plan the next SAC meeting, scheduled for

January. Later, the January meeting was postponed until February because COWAMP Chapter IV--the next chapter for review and the chapter in which the inventory of the Amenities was to be presented--was not completed.

At the time of the December planning sessions it was known that the SACs' preferences regarding the Amenities would be an important component of AEF formulation. However, since the AEF methodology had not been prepared yet, it was not known exactly how preferences on the Amenities would be incorporated into the AEF's.

The Study Consultant wished to try a mechanism for obtaining committee feedback which was more structured than the free-form verbal or written comments used previously and chose an input form format similar to a questionnaire for use as a new feedback technique. There were five objectives for use of the input forms: 1) To further heighten committee members' awareness levels of the Amenities, 2) To give the Study Consultant a general sense of how the committees felt about the Amenities, 3) To accustom the committees to thinking in terms of decisionmaking and tradeoffs--exercises which would be required more and more frequently as COWAMP progressed, 4) To accustom committee members to use of input forms, and 5) To attempt to ascertain if input forms were an effective way of obtaining committee feedback.

Accordingly, two forms were prepared by the Study Consultant and investigator. The first form, "Environmental Management Policy Preferences" (Appendix B) consisted of a listing of several of the Amenities in the lefthand column with three management policies--each requiring a different degree of stringency (maximum, moderate, or minimum) of control for implementation--listed in the second, third, and fourth columns. The form called for the committees to rank the management policies in order of preference. (A special version of the form showing which management policies were considered maximum, moderate, and minimum is included in Appendix B.)[1]

The second form, "Amenity Preferences," (Appendix B) listed the Amenities and asked the respondents to mark the ten Amenities which they felt marited the most consideration on the COWAMP Study.

In addition, a slide presentation on the Amenities was written by the investigator with the objective of increasing the committee members' level of awareness about the Amenities (Appendix C).

Both the input forms and the slide presentation were sent to the Area Planning Organization (APO) staffs and the Study Coordinator from the Department of Environmental Resources (DER) for review. No objections were expressed.

Prior to the February meetings, the Executive Summary for COWAMP Chapter IV, which included a discussion of the Amenities and small maps identifying their locations, was sent to the COWAMP mailing list.

By the time of the date of the February meeting, the AEF methodology was in tentative outline form. Also by that time, the Study Consultant was concerned about meeting a June deadline for AEF formulation. To meet the deadline input would be required from three or four monthly SAC meetings.

Because the January meeting had been postponed, there were only four meetings remaining before the deadline. Therefore, the Study Consultant decided to use the input forms as a means of obtaining feedback for direct use in AEF formulation. This decision changed the objectives of using the forms from what might be termed an exercise in making judgements and using input forms for the SAC's, to using the forms to obtain highly specific feedback for use in the process of AEF formulation.

Even though the tentative outline of the AEF methodology was complete, the Study Consultant still could not be sure of the exact type of feedback which would be needed. However, the Study Consultant felt that, in all likelihood, it would be useful to have information on the SAC's priorities among the various Amenities. Therefore, a few days before the SAC meetings were to be held, the Study Consultant decided not to use the "Amenity Preferences" form and to substitute an "Environmental Value Preferences" form (Appendix B). The substitute form divided the Amenities into four categories (Conservation of Resource Values, Preservation of Amenity Values, Protection of Ecological Values, and Upgraded of Degraded and/or Hazardous Areas) and asked respondents to distribute ten points among the Amenities in each of the four categories. In addition, respondents were asked to distribute ten points among the four categories.

The substitute form was mailed to the Area Planning Organizations but did not arrive before the first February SAC meeting.

B. WESTERN SAC MEETING - February 17, 1976

Following the slide presentation and an explanation that a new type of reaction form differing from earlier chapter review techniques would be used for the first time, the "Environmental Value Preferences" input form was distributed. Although written instructions accompanied the forms, brief verbal instructions were given by the investigator.

Also, committee members were asked to write on the forms their names, whom they represented, and their county.

The Committee's reaction to the form was swift and hostile.

The main objections to the forms as voiced were: 1) Reticence to respond without knowing precisely how the information was going to be used, a question to which the Study Consultant could not fully respond because doing so would have required a lengthy presentation of the AEF methodology which was still in tentative form, 2) Reluctance to complete the forms without further thought and/or checking with the organizations represented by committee members, and 3) A feeling that the tradeoffs required were too difficult to make. Several committee members expressed the desire to return the forms at a later date, a practice which was strongly discouraged by the investigator and Study Consultant because, 1) The information was needed for tabulation to keep the project on schedule, and 2) Fear that many persons would fail to return the forms.

Several members of the APO staffs and the DER Study Coordinator joined the Committee in objecting to filling out the form. After considerable discussion during which the Committee Chairperson was able to keep little order, the committee voted to complete the form during the meeting. The "Environmental Management Policy Preferences" form was then distributed and completed by the committee with the exception of three members who refused to participate in the process and who filled out neither form.

C. EASTERN SAC MEETING - February 18, 1976

Because of the problems which had occurred with the Western SAC meeting, the procedure was changed for the next day's meeting of Eastern SAC.

First, the order in which the forms were distributed was reversed so that the simpler "Environmental Management Policy Preferences" form was the first form committee members saw. Second, a brief explanation was given of how the information was to be used within constraints provided by the fact that the AEF methodology was not complete. Third, members were not asked to identify their forms by name and affiliation and instead were asked to list their county and the sector of the public whom they represented (conservation, industrial, agricultural, recreational, general public, governmental, or educational). Fourth, no verbal instructions were given. Instead, the committee was asked to read the written instructions silently and to ask for clarification. Few questions were asked. Completion of both forms proceeded without incident.

D. MAILED FORMS

At the insistence of some APO staff members, input forms were mailed by the APO's to those persons on the SAC mailing list who had not attended the meeting.

E. DEBRIEFING

The day after the second SAC meeting was held, the Study Consultant and the investigator met to try to ascertain reasons for the problems encountered at the Western SAC meeting. Although it was agreed that it was impossible to have definite answers as to why the meeting went poorly, it was also agreed that four factors contributed to the problem.

The four factors were:

1. Too little communication with the Area Planning Organization staffs and to some extent with the DER Study Coordinator. Because of slow mail delivery and because, for unexplained reasons, the Study Consultant, Study Coordinator, and APO staffs did not hold their usual morning meeting before the SAC met in the afternnon, the APO staffs and Study Coordinator did not see the substitute form prior to the SAC meeting. As a result, they voiced their questions about and objections to the forms on the floor of the Western SAC meeting, a factor which appeared to encourage Committee members' negative reactions to the forms.

2. An inexperienced committee chairperson. Had the chairperson stopped all discussion at the first sign of trouble and asked for clarification from the Study Consultant regarding the forms before committee members began to talk among themselves without using parliamentory procedure, the committees' adverse reaction might have been avoided or reversed.

3. Improper order of presenting the forms. Hurried last minute instructions from the Study Consultant to the investigator resulted in a misunderstanding, and the order in which the forms were presented was reversed from that intended by the Study Consultant. Had the simpler of the two forms, the "Environmental Management Policy Preferences" input form been presented first, committee members may have been sensitized to use of the forms and to making decisions and thus not have objected to the high level of decisionmaking required by the "Environmental Values Preference" input form.

4. Request for committee members names and affiliations. The members of the Western SAC appeared to be afraid that they would be held accountable to whomever they represented if they identified themselves on the input forms and therefore did not wish to respond at all.

The investigator expressed the opinion that time constraints in the COWAMP Study itself were the fundamental causes of the problems encountered at the Western SAC meeting. Had the January meeting been held as scheduled, the investigator maintained, the original objectives of using the forms as a low profile practical exercise would not have been changed, the committee could have been assured that their responses were not going to be used as critical information, and therefore committee members probably would not have raised the objections which they raised.

FOOTNOTE

[1] Some of the management policies used in the form were modified from a matrix prepared by Buchart-Horn, planning consultants from Harrisburg, Pennsylvania.

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CHAPTER IV

RESULTS

A. INTRODUCTION

Analysis of the results from the two input forms was guided by requests made by the Study Consultant based on the Study Consultant staff's evaluation of their information needs. These needs fell into two broad categories: 1) Information to be used directly in formulation of the Alternative Environmental Futures (AEF's), and 2) Information to be used in ascertaining an overview of the committees' feelings about the Environmental Amenities presented in COWAMP Chapter IV.

For purposes of AEF formulation, the Study Consultant requested that information be divided into six categories: 1) Eastern SAC Committee, 2) Western SAC Committee, 3) the combined Eastern and Western SAC Committees (hereinafter identified as SAC Committee), 4) Eastern SAC At Large, 5) Western SAC At Large, and 6) the combined Eastern and Western SAC's At Large (hereinafter identified as SAC At Large).

The first three groups attended the February meetings at which the audio visual presentation on the Amenities was made and the input forms were filled out with written and verbal instructions and an opportunity for questions. The latter three groups received only written information on the Amenities and written instructions about the input forms in the mail. Because the SAC Committee and SAC At Large groups were operating on different information bases, the Study Consultant decided to keep the two groups separate and did not wish to have them combined. However, since the Eastern SAC At Large and the Western SAC At Large received identical information (no audio visual presentation but written instructions only) it was decided to combine the two groups. By the same token, the Eastern SAC Committee and the Western SAC Committee both received the audio visual presentation and had verbal and written instructions and a chance to ask questions. Even though the two groups did not meet together, the Study Consultant decided it was justifiable to treat the two groups together because their information base was essentially identical.

It was anticipated that the information from the combined groups (SAC Committee and SAC At Large) would be used in formulating the first AEF iterations for the entire Study Area. Later iterations, though, might require that AEF's be formulated for the smaller geographic areas as represented by the Eastern and Western groups both for the Committee and the At Large units.

B. ENVIRONMENTAL MANAGEMENT POLICY PREFERENCES INPUT FORM

Fifteen forms were completed for the Eastern SAC Committee. There were no incorrect forms, and therefore all 15 were tabulated. The Western SAC Committee completed 12 forms. There were no errors and all 12 were tabulated. Forms for the SAC Committee, then, numbered 27.

For the Eastern SAC At Large, 10 forms were completed and all 10 were tabulated. For Eastern SAC At Large, however, two of the 16 forms were completed incorrectly and could not be tabulated. SAC At Large numbered 24.

To tabulate the responses, the management policies were reordered according to maximum, moderate, and minimum. As explained in Chapter III, those three adjectives refer to the relative amount of stringency of controls which would be required to implement the policies.

For each Amenity, responses were tabulated according to the number of responses of 1's (least preference), 2's (medium preference), and 3's (highest preference) which occurred for each policy category (maximum, moderate, or minimum). The 1's, 2's, and 3's were considered to be numbers and not mere rank labels. For each policy category, ranks were multiplied by the number of responses and the three resulting numbers were summed. This process produced three totals for the policies relating to each Amenity. The highest total number was ranked the group's first choice, the second highest total was ranked the group's second choice, and the third highest total was ranked the group's third choice.[2] The responses, ranks, totals, and choices are summarized in Tables IV-1 through IV-6.

The first, second, and third choices in the format required by the AEF methodology are presented in Tables IV-7 through IV-12.

Table IV-13 indicates the number of times for each group that: the maximum policy was first, second, and third choice; the moderate policy was first, second, and third choice; and the minimum policy was first, second, and third choice.

Table IV-14 indicates the specific Amenities for which the maximum policy was first choice for the six groups. Table IV-15 indicates the Aemnities for which the moderate policy was first choice. Table IV-16 indicates the Amenities for which the minimum policy was first choice.

Two questions which can be asked about the groups' preferences are: Did the groups tend to favor one management policy more than others? and 2) If so, did the various groups agree or disagree?

A definite trend can be seen by examining the group's first and third choices.

For first choice, the Eastern SAC Committee selected the maximum policy two times, the moderate policy nine times, and the minimum policy four times. Based on the group's first choice, it can be said that the Eastern SAC Committee favored moderate management policies the most and maximum management policies the least.

The Western SAC Committee selected the maximum policy as first choice three times, the moderate policy eight times, and the minimum policy four times. Like the Eastern SAC Committee, the Western SAC Committee favored moderate management policies the most and maximum policies the least.

When the Eastern and Western SAC Committees were combined into the SAC Committee, the maximum policy was the first choice one time, the moderate policy was first choice nine times, and the minimum policy was first choice four times indicating that this group, based on its first choices, also favored moderate management policies the most and maximum the least.

The same trend was observed for the three At Large groups. Eastern SAC At Large selected maximum as first choice two times, moderate eight times, and minimum five times. For the Western SAC At Large, the maximum policy was chosen first two times, the moderate ten times, and the minimum five times. The SAC At Large chose maximum as first choice one time, moderate as first choice ten times, and the minimum three times.

There was complete agreement among the six groups on the ranking of first choices with moderate policies being the first choice most often and the maximum policies being the first choice least often.

Examination of the second choice preferences shows no discernible pattern.

However, a pattern does emerge from observations of the third choices. For each group, the maximum policy was chosen more times than either the moderate or minimum policies.

Since the maximum policy was chosen least often as a first choice and most often as a third choice, it appears that the SAC's do not favor management policies of maximum stringency. Their preferences appear to be strongly for the policies of moderate stringency.

Amenities for which the groups chose the maximum policy as their first choice as shown in Table IV-14 can be considered Amenities which the groups believe merit strong protection or consideration.

Wetland Areas appear as an Amenity for which the maximum policy was first choice for all six groups. It is the only Amenity for which the maximum policy was first choice that appears for more than one group.

Amenities for which the moderate policy was the first choice as shown in Table IV-15 can be considered Amenities which the groups believe merit the second highest amount of consideration or protection.

All six groups chose Geologically Unique Areas, Areas Disturbed By Mining, Degraded Surface Water, and Natural Areas. Five out of the six groups chose Geologic Problem Areas, Degraded Groundwater, and Critical Recharge Areas. Steep Slopes were a moderate first choice for four of the six groups. All three At Large groups chose Agricultural Areas and

Problem Soil Areas. However, neither of these Amenities was chosen by any of the Committee groups.

Amenities for which the minimum policy was first choice as shown in Table IV-16 can be considered Amenities which the groups felt did not merit strong protection or consideration.

Mineral Resource Areas and Floodprone Areas were the minimum first choice for all six groups. Agricultural Areas were the choice for four of the six groups. Scenic Waterways were chosen by all three At Large groups but never by the Committee groups.

Since a large number of Amenities appear for all or almost all of the six groups, it appears that there is substantial agreement regarding the Amenities which were selected by the groups as their first choices.

C. ENVIRONMENTAL VALUE PREFERENCE INPUT FORM

Fifteen input forms were completed by the Eastern SAC Committee. One of the forms was completed incorrectly and was not tabulated leaving a population of 14. Eleven forms were completed for Western SAC Committee and all were tabulated making a population of 11. The combined forms made a population of 25 for the SAC Committee.

All completed forms for the SAC At Large groups were completed correctly and were tabulated. Eastern SAC At Large was 10. Western SAC At Large was 15, and SAC At Large was 25.

For each of the four categories of Amenities (Conservation of Resource Values, Preservation of Amenity Values, Protection of Ecological Values, and Upgrading of Degraded and/or Hazardous Areas) the number of points apportioned to each Amenity by each group was calculated for the six groups. The results appear on Tables IV-17 through IV-24.

For the six Amenities listed under the Conservation of Resource Values category (Coal Resources, Other Mineral Resources, Agricultural Land, Water Resources, Forest Resources, and Land Resources for Development) the Eastern SAC Committee and the Western SAC Committee both chose Water Resources as the highest preference, Forest Resources as their second highest preference and Coal Resources as their lowest preference (with Western SAC showing a tie for lowest preference between Other Mineral Resources and Coal Resources). When the Eastern and Western SAC Committees were combined into the SAC Committee the highest, second highest, and lowest preferences remained the same.

The Eastern SAC At Large chose Water Resources as the highest preference and Agricultural Lands as the second highest while the Western SAC At Large reversed those two preferences and showed Agricultural Lands as their highest preference and Water Resources as the second highest. When the two groups were combined into SAC At Large, Water Resources becomes the highest preference and Agricultural Lands becomes the second highest preference. All three groups agreed that Land Resources for Development was the lowest preference.

The six groups show a high level of agreement on their highest preference with Water Resources being the highest preference for all the groups except the Western SAC At Large. Water Resources, Forest Resources, and Agricultural Lands appear among the three highest preferences. All three SAC Committee groups chose Coal Resources as their least preference while the SAC At Large groups all selected

Land Resources for Development as their least highest preference.

For the six Amenities listed under the Preservation of Amenity Values category (Recreation Areas, Geologically Unique Areas, Historic and Scenic Areas, Fishing and Boating Areas, Forest and Game Lands, and Steep Slope Areas), the Eastern SAC Committee's highest preference was for Forest and Game Lands, with Fishing and Boating Areas being the second highest preference. The Western SAC Committee had a three-way tie for highest preference among Forest and Game Lands, Recreation Areas, and Historic and Scenic Areas.

When the Eastern and Western groups were combined into the SAC Committee, Forest and Game Lands was the highest preference while Fishing and Boating Areas was the second highest preference.

For the lowest preference, the Eastern SAC Committee, the Western SAC Committee, and the combined SAC Committee all selected Steep Slope Areas.

There was, then, agreement among the three Committee groups that Forest and Game Lands were the most important with Western SAC also exhibiting preferences for Recreation Areas and Historic Areas. There was also agreement that Fishing and Boating Areas received the second highest preference and Steep Slopes the lowest preference.

For Eastern SAC At Large the highest preference was Historic and Scenic Areas while second highest was Forest and Game Lands. For Western SAC At Large the preferences were reversed. Forest and Game Lands were the highest preference while Historic and Scenic Areas was the second highest preference.

When the Eastern SAC At Large and Western SAC At Large were combined into SAC At Large, Historic and Scenic Areas were tied with Forest and Game Lands for highest preference.

For lowest preference Eastern SAC At Large chose Fishing and Boating Areas and Steep Slopes, Western SAC At Large chose Geologically Unique Areas, and the combined groups into SAC At Large showed a tie between Fishing and Boating Areas and Steep Slope Areas.

Both agreement and disagreement exist among the three Committee groups and the three At Large groups. Forest and Game Lands are a consistent first choice. Fishing and Boating Areas were a consistent second choice for the Committee groups but not for the At Large groups. In fact, for the At Large groups, Fishing and Boating Areas appears as the lowest preference twice. Historic and Scenic Areas are either the highest or second highest preference for the At Large groups but do not appear at all as first or second highest preferences for the Committee groups.

Steep Slope Areas are a consistent lowest preference. The only exception is Western SAC At Large which selected Geologically Unique Areas as its lowest preference. Steep Slope Areas, however, was the second lowest choice for that group.

For the Amenities under the Protection of Ecological Values category (Water Conservation Areas, Wetlands, Critical Groundwater Recharge Areas, Wildlife, Vegetation, and Natural Areas) the Eastern SAC Committee preferred Water Conservation Areas first and Wildlife second, while the Western SAC Committee preferred Critical Groundwater Recharge Areas first and Natural Areas second. None of the same Amenities appear more than once in these choices. When the two groups were combined into the

SAC Committee, Natural Areas are the first preference and Critical Groundwater Recharge Areas are the second preference.

For lowest preference the Eastern SAC Committee chose Critical Groundwater Recharge Areas, the Western SAC Committee chose Wildlife, and the SAC Committee chose Wetlands.

Eastern SAC At Large preferred Critical Groundwater Recharge Areas first and Water Conservation Areas second while Western SAC At Large reversed the preferences by selecting Water Conservation Areas first and Critical Groundwater Recharge Areas second. When the two groups were combined into SAC At Large, Critical Recharge Areas was first preference while Water Conservation Areas was the second preference.

For lowest preference Eastern SAC At Large preferred Wetlands, Western SAC At Large preferred Vegetation, and the combined SAC At Large preferred Vegetation.

While there was agreement among the three SAC At Large groups that Groundwater Recharge Areas and Water Conservation Areas were the two highest preferences, the SAC Committee groups had diversified preferences. There was very little agreement between the Committee groups and At Large groups on either high or low preferences.

For the Amenities appearing under the category of Upgrading of Degraded and/or Hazardous Areas (Geologic Problem Areas, Areas Disturbed By Mining, Problem Soil Areas, Floodplains, Degraded Surface Water, and Steep Slope Areas) the Eastern SAC Committee selected Areas Disturbed By Mining as the highest preference and Degraded Surface Water as the second highest preference. The Western SAC Committee selected Degraded Surface Water as highest preference and Degraded

Groundwater as the second highest preference. When the two groups were combined into the SAC Committee, Areas Disturbed By Mining was the highest preference and Degraded Surface Water was the second highest preference.

All three of the SAC Committee groups selected Steep Slope Areas as their lowest preference.

Eastern SAC At Large selected Areas Disturbed By Mining as highest preference and both Degraded Surface Water and Degraded Groundwater as second highest preference. Western SAC At Large chose Areas Disturbed By Mining and Degraded Groundwater as first and second highest preferences, respectively. When the Eastern and Western groups were combined into SAC At Large, Areas Disturbed By Mining is first highest preference and Degraded Groundwater is second highest.

All three of the At Large groups selected Geologic Problem Areas as the lowest preference.

There appears to be agreement among the groups that Areas Disturbed By Mining is an important concern because that Amenity appeared as first choice for every group except Western SAC Committee. Degraded Groundwater and Degraded Surface Water also appeared to be important concerns with those Amenities being selected as either second highest or third highest preference for all six groups.

Although there was agreement among the three SAC Committee groups and among the three SAC At Large groups on the lowest preference, there was not agreement between the Committee groups and the At Large groups.

As explained in Chapter III, the groups were asked not only to apportion ten points among each of the Amenities listed under the four categories, but also to apportion 10 points among the four categories (Conservation of Resource Values, Preservation of Amenity Values, Protection of Ecological Values, and Upgrading of Degraded and/or Hazardous Areas). Several persons did not apportion any points among the four categories. These non-responses numbered three for the Eastern SAC Committee, one for the Western SAC Committee, six for the Eastern SAC At Large and nine for the Western SAC At Large.

However, the Study Consultant requested that even the limited amount of information be tabulated for possible future use in AEF formulation. The information appears in Tables IV-25 and IV-26.

For Eastern SAC Committee the four choices in order of importance were Upgrading of Degraded and/or Hazardous Areas, Conservation of Resource Values, Protection of Ecological Values, and Preservation of Amenity Values. For Western SAC Committee the ordered choices were Protection of Ecological Values, Conservation of Resource Values, Upgrading of Degraded and/or Hazardous Values, and Preservation of Amenity Values. The SAC Committee preferences were for Conservation of Resource Values first, for Upgrading of Degraded and/or Hazardous Areas second, Protection of Ecological Values third, and Preservation of Amenity Values fourth.

The four choices in order of importance for Eastern SAC At Large were Upgrading of Hazardous and/or Degraded Areas, Conservation of Resource Values, Protection of Ecological Values, and Preservation of Amenity Values. For the Western SAC At Large the four ordered choices were Conservation of Resource Values, Protection of Ecological Values, Upgrading of Hazardous and/or Degraded Areas, and Preservation of

Amenity Values. For the SAC At Large the choices were for Conservation of Resource Values, Upgrading of Hazardous and/or Degraded Areas, Protection of Ecological Values, and Preservation of Amenity Values.

D. BOTH FORMS

Additional information about the Committees' feelings regarding the Amenities may be obtained from observing the combined results of both forms together. The question can be asked: For Amenities for which the groups showed a high degree of concern on the Environmental Value Preference input form, did they also select management policies of maximum stringency on the Environmental Management Policies Preferences form?

For the Conservation of Resource Values category the Eastern SAC Committee chose Water Resources first. Management policies for related Amenities which were chosen as first were:

Degraded Surface Water - Moderate
Degraded Groundwater - Moderate
Critical Recharge Areas - Moderate
Scenic Waterways - Maximum
Wetland Areas - Maximum

The Western SAC Committee also chose Water Resources first. Related Amenities and the management policies chosen as first were:

Degraded Surface Water - Moderate
Degraded Groundwater - Moderate
Critical Recharge Areas - Moderate
Scenic Waterways - Moderate
Wetland Areas - Minimum/Maximum tie

Like its two sub-groups, the SAC Committee chose Water Resources first. Related Amenities and the management policies chosen as first were:

Degraded Surface Water - Moderate
Degraded Groundwater - Moderate
Critical Recharge Areas - Moderate
Scenic Waterways - Moderate
Wetland Areas - Maximum

The Eastern SAC At Large selected Water Resources as the highest preference Amenity. Related Amenities and the management policies chosen as first were:

Degraded Surface Water - Moderate
Wetland Areas - Maximum
Degraded Groundwater Areas - Moderate
Critical Recharge Areas - Moderate
Scenic Waterways - Moderate

Western SAC At Large selected Agricultural Areas as its highest preference Amenity but chose the minimum management policy.

SAC At Large chose Water Resources first as a Resource Value. Related Amenities and the management policies chosen first were:

Degraded Surface Water - Moderate
Wetland Areas - Maximum
Degraded Groundwater Areas - Moderate
Scenic Waterways - Minimum

In the Preservation of Amenity Values category, Eastern SAC selected Forest and Game Lands as first, Western SAC selected Recreation Areas, Historic and Scenic Areas, and Forest and Game Lands, and SAC Committee chose Forest and Game Lands. Eastern SAC At Large chose Historic and Scenic Areas, Western SAC At Large chose Forest and Game Lands, and SAC At Large selected Historic and Scenic Areas and Forest and Game Lands. None of these Amenities was listed on the Environmental Management Policy Preferences input form. Therefore, the groups had no opportunity to express a choice regarding the management policies for their first choice Amenities in this category and no comparisons can be made.

The Western SAC Committee chose Critical Groundwater Recharge Areas first and an accompanying moderate management policy.

The SAC Committee chose Natural Areas as the first choice and an accompaying moderate management policy.

The Eastern SAC At Large selected Critical Groundwater Recharge Areas as first choice and a moderate management policy for that Amenity.

The Western SAC At Large chose Water Conservation Areas first. Since that Amenity does not appear on the "Environmental Management Policy Preferences" input form, no comparison can be made.

SAC At Large selected Critical Recharge Areas and an accompanying moderate management policy.

For the Upgrading of Degraded and/or Hazardous Areas category Eastern SAC Committee selected Areas Disturbed By Mining as the highest preference and an accompanying moderate management policy. Western SAC Committee chose Degraded Surface Water and an accompanying moderate management policy. The SAC Committee also selected Degraded Surface Water and a moderate management policy.

All three of the At Large groups chose Areas Disturbed By Mining and a moderate management policy.

In the large majority of cases the Amenities for which the groups showed a highest preference on the Environmental Value Preference form, the accompanying management policy chosen first on the Environmental Management Policies Preference form was not the maximum policy. In most cases the management policy chosen was moderate. It can be said that in general the groups were not willing to back up their highest preferences with management policies of maximum stringency.

E. SUMMARY

Observations of the responses to the Environmental Management Policy preference form provided: 1) information on which management policies were the groups' first, second, and third choices as called for in the AEF methodology, 2) analysis of the number of times each of the three management policies (maximum, moderate, or minimum) appeared as a first choice, a second choice, and a third choice which suggested that the groups favored the moderate policies the most and the maximum policies the least, and 3) a comparison of the specific Amenities for which the groups chose the maximum policy as first choice, the moderate policy as first choice, and the minimum policy as first choice which suggested that there was substantial agreement among the six groups.

Observations of the responses to the Environmental Value Preference input form provided: 1) rankings of the first and second highest and the lowest preferences for the Amenities listed under each of the four categories (Conservation of Resource Values, Preservation of Amenity Values, Protection of Ecological Values, and Upgrading of Degraded and/or Hazardous Areas) which showed no trends of agreement or disagreement, and 3) rankings among the four categories which also showed no trends.

A comparison of the responses on the two forms indicated that in most cases even though a specific Amenity received a highest preference ranking on the Environmental Value Preference input form, the groups selected a moderate management policy for the same or related Amenities on the Environmental Management Policy Preference input form.

FOOTNOTE

[2] The method of determining the groups' first, second and third choices for the Environmental Management Policy Preferences input form was suggested by James M. Dowdy of The Ohio State University School of Natural Resources faculty and by Edward E. Gbur, Statistical Consultant for The Ohio State University Statistical Laboratory, after a conference with the laboratory staff and Statistics Department faculty. Although technically the "1", "2", and "3" designations were rank labels and not numbers, it was agreed that the rank labels could be considered numbers for purposes of tabulating the form because there was an equal interval between "1" and "2" and between "2" and "3".

Table IV - 1: Preferences and Choices on Environmental Management Policy Preferences Input Form - E. SAC Committee

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences			Totals	Choices
		1's	2's	3's		
1. Steep Slopes	Max.	8 responses(s)	2 response(s)	4 response(s)	24	3
	Mod.	3 "	3 "	8 "	33	1
	Min.	3 "	9 "	2 "	27	2
2. Geologic Problem Areas	Max.	8 "	3 "	3 "	23	3
	Mod.	0 "	6 "	8 "	36	1
	Min.	6 "	5 "	3 "	25	2
3. Geologically Unique Areas	Max	8 "	2 "	5 "	27	2
	Mod.	0 "	7 "	8 "	38	1
	Min.	7 "	6 "	2 "	25	3
4. Mineral Resource Areas	Max.	5 "	7 "	3 "	28	3
	Mod.	4 "	6 "	5 "	31	1
	Min.	6 "	2 "	7 "	31	1
5. Areas Disturbed by Mining	Max.	3 "	10 "	2 "	29	2
	Mod.	4 "	5 "	6 "	32	1
	Min.	8 "	0 "	7 "	29	2

Table IV - 1 (Cont'd)

Amenity	Policy	Preferences	1 = least 2 = medium 3 = highest		Totals	Choices
		1's	2's	3's		
6. Problem Soil Areas	Max.	12 response(s)	1 response(s)	1 response(s)	17	3
	Mod.	1 "	12 "	"	28	2
	Min.	1 "	1 "	12 "	31	1
7. Agricultural Areas	Max.	7 "	7 "	1 "	24	3
	Mod.	4 "	5 "	6 "	32	2
	Min.	4 "	3 "	8 "	34	1
8. Degraded Surface Water	Max.	9 "	3 "	3 "	24	3
	Mod.	1 "	9 "	5 "	34	1
	Min.	5 "	3 "	7 "	32	2
9. Wetland Areas	Max.	1 "	7 "	7 "	36	1
	Mod.	12 "	1 "	2 "	20	3
	Min.	2 "	7 "	6 "	34	2
10. Floodprone Areas	Max.	9 "	2 "	4 "	25	3
	Mod.	5 "	8 "	2 "	27	2
	Min.	1 "	5 "	9 "	38	1

Table IV - 1 (Cont'd)

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
11. Degraded Groundwater Areas	Max.	5 response(s)	6 response(s)	3 response(s)	26	2
	Mod.	1 "	4 "	9 "	36	1
	Min.	8 "	4 "	2 "	22	3
12. Critical Recharge Areas	Max.	9 "	3 "	2 "	21	3
	Mod.	0 "	4 "	10 "	38	1
	Min.	5 "	7 "	2 "	25	2
13. Wetland Areas	Max.	6 "	4 "	4 "	26	2
	Mod.	1 "	8 "	5 "	32	1
	Min.	7 "	2 "	5 "	26	2
14. Scenic Waterways	Max.	3 "	2 "	6 "	25	1
	Mod.	4 "	3 "	4 "	22	2
	Min.	4 "	6 "	1 "	19	3

Table IV - 2: Preferences and Choices on Environmental Management Policy Preferences Input Form -- W. SAC Committee

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
1. Steep Slopes	Max.	4 response(s)	2 response(s)	6 response(s)	26	1
	Mod.	3 "	5 "	4 "	25	2
	Min.	5 "	5 "	2 "	21	3
2. Geologic Problem Areas	Max.	3 "	1 "	8 "	29	1
	Mod.	2 "	7 "	3 "	25	2
	Min.	7 "	5 "	0 "	17	3
3. Geologically Unique Areas	Max.	5 "	4 "	3 "	22	2
	Mod.	1 "	4 "	7 "	30	1
	Min.	6 "	4 "	2 "	20	3
4. Mineral Resource Areas	Max.	6 "	3 "	3 "	21	3
	Mod.	3 "	8 "	1 "	22	2
	Min.	3 "	1 "	8 "	29	1
5. Areas Disturbed by Mining	Max.	6 "	4 "	2 "	20	3
	Mod.	2 "	5 "	5 "	27	1
	Min.	4 "	3 "	5 "	25	2

Table IV - 2. (Cont'd)

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
6. Problem Soil Areas	Max.	8 response(s)	1 response(s)	3 response(s)	19	3
	Mod.	0 "	8 "	4 "	28	1
	Min.	4 "	3 "	5 "	25	2
7. Agricultural Areas	Max.	10 "	0 "	2 "	16	3
	Mod.	2 "	5 "	5 "	27	2
	Min.	0 "	7 "	5 "	29	1
8. Degraded Surface Water	Max.	7 "	2 "	3 "	20	3
	Mod.	1 "	3 "	8 "	31	1
	Min.	4 "	7 "	1 "	21	2
9. Wetland Areas	Max.	0 "	7 "	5 "	29	1
	Mod.	11 "	0 "	1 "	14	3
	Min.	1 "	5 "	6 "	29	1
10. Floodprone Areas	Max.	6 "	4 "	2 "	20	2
	Mod.	6 "	5 "	1 "	19	3
	Min.	0 "	3 "	9 "	33	1

Table IV - 2. (Cont'd)

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
11. Degraded Groundwater Areas	Max.	6 response(s)	3 response(s)	3 response(s)	21	2
	Mod.	2 "	2 "	8 "	30	1
	Min.	4 "	7 "	1 "	21	2
12. Critical Recharge Areas	Max.	4 "	6 "	2 "	22	2
	Mod.	1 "	4 "	7 "	30	1
	Min.	7 "	2 "	3 "	20	3
13. Natural Areas	Max.	2 "	7 "	3 "	25	2
	Mod.	1 "	4 "	7 "	30	1
	Min.	9 "	1 "	2 "	17	3
14. Scenic Waterways	Max.	7 "	2 "	3 "	20	3
	Mod.	1 "	6 "	5 "	28	1
	Min.	4 "	4 "	4 "	24	2

Table IV - 3: Preferences and Choices on Environmental Management Policy Preferences Input Form - SAC Committee

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences			Totals	Choices
		1's	2's	3's		
1. Steep Slopes	Max.	12 response(s)	4 response(s)	10 response(s)	50	2
	Mod.	6 "	8 "	12 "	58	1
	Min.	8 "	14 "	4 "	48	3
2. Geologic Problem Areas	Max.	11 "	4 "	11 "	52	2
	Mod.	2 "	13 "	11 "	61	1
	Min.	13 "	10 "	3 "	42	3
3. Geologically Unique Areas	Max.	13 "	6 "	8 "	49	2
	Mod.	1 "	11 "	15 "	68	1
	Min.	13 "	10 "	4 "	45	3
4. Mineral Resources Areas	Max.	11 "	10 "	6 "	49	3
	Mod.	7 "	14 "	6 "	53	2
	Min.	9 "	3 "	15 "	60	1
5. Areas Disturbed by Mining	Max.	9 "	14 "	4 "	49	3
	Mod.	6 "	10 "	11 "	59	1
	Min.	12 "	3 "	12 "	54	2

Table IV - 3. (Cont'd)

Amenity	Policy	Preferences	1 = least 2 = medium 3 = highest		Totals	Choices
		1's	2's	3's		
6. Problem Soil Areas	Max.	20 response(s)	2 response(s)	4 response(s)	36	3
	Mod.	1 "	20 "	5 "	56	2
	Min.	5 "	4 "	17 "	64	1
7. Agricultural Areas	Max.	17 "	7 "	3 "	40	3
	Mod.	6 "	10 "	11 "	59	2
	Min.	4 "	10 "	13 "	63	1
8. Degraded Surface Water	Max.	16 "	5 "	6 "	44	3
	Mod.	2 "	12 "	13 "	65	1
	Min.	9 "	10 "	8 "	53	2
9. Critical Recharge Areas	Max.	1 "	14 "	12 "	65	1
	Mod.	23 "	1 "	3 "	34	3
	Min.	3 "	12 "	12 "	63	2
10. Floodprone Areas	Max.	15 "	6 "	6 "	45	3
	Mod.	11 "	13 "	3 "	46	2
	Min.	1 "	8 "	18 "	71	1

Table IV - 3. (Cont'd)

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
11. Degraded Groundwater Area	Max.	11 response(s)	9 response(s)	6 response(s)	47	2
	Mod.	3 "	6 "	17 "	66	1
	Min.	12 "	11 "	3 "	43	3
12. Critical Recharge Areas	Max.	13 "	9 "	14 "	43	3
	Mod.	1 "	8 "	7 "	68	1
	Min.	2 "	9 "	5 "	45	2
13. Natural Areas	Max.	8 "	11 "	7 "	51	2
	Mod.	2 "	12 "	12 "	62	1
	Min.	16 "	3 "	7 "	43	3
14. Scenic Waterways	Max.	10 "	4 "	9 "	45	2
	Mod.	5 "	9 "	9 "	50	1
	Min.	8 "	10 "	5 "	43	3

Table IV - 4. Preferences and Choices on Environmental Management Policy Preferences Input Form - E. SAC At Large

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
1. Steep Slopes	Max.	5 response(s)	1 response(s)	3 response(s)	16	3
	Mod.	2 "	5 "	2 "	18	2
	Min.	2 "	3 "	4 "	20	1
2. Geologic Problem Areas	Max.	7 "	1 "	1 "	12	3
	Mod.	J "	4 "	5 "	23	1
	Min.	2 "	4 "	3 "	19	2
3. Geologically Unique Areas	Max.	5 "	4 "	1 "	16	3
	Mod.	1 "	4 "	5 "	24	1
	Min.	4 "	3 "	3 "	19	2
4. Mineral Resource Areas	Max.	5 "	4 "	1 "	16	2
	Mod.	5 "	4 "	1 "	16	2
	Min.	0 "	2 "	8 "	28	1
5. Areas Disturbed by Mining	Max.	5 "	4 "	1 "	16	3
	Mod.	2 "	3 "	5 "	23	1
	Min.	4 "	2 "	4 "	20	2

Table IV - 4. (Cont'd)

Amenity	Policy	Preferences 1's	1 = least 2 = medium 3 = highest 2's	3's	Totals	Choices
6. Problem Soil Areas	Max.	7 response(s)	9 response(s)	3 response(s)	16	3
	Mod.	0 "	8 "	2 "	22	1
	Min.	3 "	2 "	5 "	22	1
7. Agricultural Areas	Max.	6 "	1 "	3 "	17	3
	Mod.	3 "	2 "	5 "	22	1
	Min.	1 "	7 "	2 "	21	2
8. Degraded Surface Water	Max.	4 "	1 "	5 "	21	2
	Mod.	1 "	6 "	3 "	22	1
	Min.	5 "	3 "	2 "	17	3
9. Wetland Areas	Max.	2 "	2 "	6 "	24	1
	Mod.	6 "	1 "	3 "	17	3
	Min.	2 "	7 "	1 "	19	2
10. Floodprone Areas	Max.	4 "	2 "	4 "	20	2
	Mod.	5 "	4 "	1 "	16	3
	Min.	1 "	4 "	5 "	24	1

Table IV - 4. (Cont'd)

1 = least
2 = medium
3 = highest

Amenity		Policy	Preferences 1's	2's	3's	Totals	Choices
11.	Degraded Groundwater Areas	Max.	3 response(s)	1 response(s)	5 response(s)	20	1
		Mod.	2 "	4 "	3 "	19	2
		Min.	4 "	4 "	1 "	15	3
12.	Critical Recharge Areas	Max.	7 "	1 "	1 "	12	3
		Mod.	0 "	5 "	4 "	22	1
		Min.	2 "	3 "	4 "	20	2
13.	Natural Areas	Max.	5 "	2 "	2 "	15	3
		Mod.	1 "	4 "	4 "	21	1
		Min.	3 "	3 "	3 "	18	2
14.	Scenic Waterways	Max.	4 "	3 "	3 "	19	2
		Mod.	5 "	3 "	2 "	17	3
		Min.	1 "	4 "	5 "	24	1

Table IV - 3: Preferences and Choices on Environmental Management Policy Preferences Input Form -- W. SAC At Large

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
1. Steep Slopes	Max.	4 response(s)	4 response(s)	6 response(s)	30	2
	Mod.	1 "	6 "	7 "	34	1
	Min..	9 "	4 "	1 "	20	3
2. Geologic Problem Areas	Max.	5 "	1 "	7 "	28	2
	Mod.	0 "	9 "	4 "	30	1
	Min..	8 "	3 "	2 "	20	3
3. Geologically Unique Areas	Max.	7 "	4 "	3 "	24	3
	Mod.	1 "	5 "	8 "	35	1
	Min.	6 "	5 "	3 "	25	2
4. Mineral Resource Areas	Max.	6 "	0 "	6 "	24	2
	Mod.	1 "	11 "	0 "	23	3
	Min.	5 "	1 "	6 "	25	1
5. Areas Disturbed by Mining	Max.	6 "	4 "	4 "	26	3
	Mod.	2 "	8 "	4 "	30	1
	Min.	6 "	2 "	6 "	28	2

Table IV - 5. (Cont'd)

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
6. Problem Soil Areas	Max.	11 response(s)	2 response(s)	1 response(s)	18	3
	Mod.	1 "	6 "	7 "	34	1
	Min.	2 "	6 "	6 "	32	2
7. Agricultural Areas	Max.	11 "	1 "	1 "	16	3
	Mod.	2 "	4 "	7 "	31	1
	Min.	0 "	8 "	5 "	31	1
8. Degraded Surface Water	Max.	5 "	3 "	5 "	26	1
	Mod.	3 "	7 "	3 "	26	1
	Min.	5 "	3 "	5 "	26	1
9. Wetland Areas	Max.	0 "	6 "	8 "	36	1
	Mod.	12 "	2 "	0 "	16	3
	Min.	2 "	6 "	6 "	32	2
10. Floodprone Areas	Max.	10 "	3 "	1 "	19	3
	Mod.	3 "	8 "	3 "	28	2
	Min.	1 "	3 "	10 "	37	1

Table IV - 5. (Cont'd)

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
11. Degraded Groundwater Areas	Max.	7 response(s)	3 response(s)	4 response(s)	25	2
	Mod.	1 "	4 "	9 "	36	1
	Min.	6 "	7 "	1 "	23	3
12. Critical Recharge Areas	Max.	4 "	4 "	6 "	30	2
	Mod.	1 "	8 "	5 "	32	1
	Min.	6 "	2 "	3 "	22	3
13. Natural Areas	Max.	7 "	4 "	3 "	24	3
	Mod.	0 "	8 "	6 "	34	1
	Min.	7 "	2 "	5 "	26	2
14. Scenic Waterways	Max.	5 "	3 "	6 "	29	2
	Mod.	7 "	4 "	3 "	24	3
	Min.	2 "	7 "	5 "	31	1

Table IV - 6: Preferences and Choices On Environmental Management Policy Preferences Input Form -- E. SAC At Large

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
1. Steep Slopes	Max.	9 response(s)	5 response(s)	9 response(s)	46	2
	Mod.	3 "	11 "	9 "	52	1
	Min.	11 "	7 "	5 "	40	3
2. Geologic Problem Areas	Max.	12 "	2 "	8 "	40	2
	Mod.	0 "	13 "	9 "	53	1
	Min.	10 "	7 "	5 "	39	3
3. Geologically Unique Areas	Max.	12 "	8 "	4 "	40	3
	Mod.	2 "	9 "	13 "	59	1
	Min.	10 "	8 "	6 "	44	2
4. Mineral Resource Areas	Max.	11 "	4 "	7 "	40	2
	Mod.	6 "	15 "	1 "	39	3
	Min.	5 "	3 "	4 "	53	1
5. Areas Disturbed by Mining	Max.	11 "	8 "	5 "	42	3
	Mod.	4 "	11 "	9 "	53	1
	Min.	10 "	4 "	10 "	48	2

Table IV - 6. (Cont'd)

1 = least
2 = medium
3 = highest

Amenity	Policy	Preferences 1's	2's	3's	Totals	Choices
6. Problem Soil Areas	Max.	18 response(s)	2 response(s)	4 response(s)	34	3
	Mod.	1 "	14 "	9 "	56	1
	Min.	5 "	8 "	11 "	54	2
7. Agricultural Areas	Max.	17 "	2 "	4 "	33	3
	Mod.	5 "	6 "	12 "	53	1
	Min.	1 "	15 "	7 "	52	2
8. Degraded Surface Waters	Max.	9 "	4 "	10 "	47	2
	Mod.	4 "	13 "	6 "	48	1
	Min.	10 "	6 "	7 "	43	3
9. Wetland Areas	Max.	2 "	8 "	14 "	60	1
	Mod.	18 "	3 "	3 "	33	3
	Min.	4 "	13 "	7 "	51	2
10. Floodprone Areas	Max.	14 "	5 "	5 "	39	3
	Mod.	8 "	12 "	4 "	44	2
	Min.	2 "	7 "	15 "	61	1

Table IV - 6. (Cont'd)

Preferences: 1 = least, 2 = medium, 3 = highest

Amenity	Policy	1's	2's	3's	Totals	Choices
11. Degraded Groundwater Areas	Max.	10 response(s)	4 response(s)	9 response(s)	45	2
	Mod.	3 "	8 "	12 "	55	1
	Min.	10 "	11 "	3 "	38	3
12. Critical Recharge Areas	Max.	11 "	5 "	7 "	42	2
	Mod.	1 "	13 "	9 "	54	1
	Min.	11 "	5 "	7 "	42	2
13. Natural Areas	Max.	12 "	6 "	5 "	39	3
	Mod.	1 "	12 "	10 "	55	1
	Min.	10 "	5 "	8 "	44	2
14. Scenic Waterways	Max.	9 "	6 "	9 "	48	2
	Mod.	12 "	7 "	5 "	41	3
	Min.	3 "	11 "	10 "	55	1

Table IV - 7: Eastern SAC Committee Choices On Environmental Management Policy Preferences Input Form

AMENITY	Choices According to Stringency			Choices As Per Form		
	1st	2nd	3rd	1st	2nd	3rd
Steep Slopes	Mod.	Min.	Max.	B	C	A
Geologic Problem Areas	Mod.	Min.	Max.	A	C	B
Geologically Unique Areas	Mod.	Max.	Min.	B	C	A
Mineral Resource Areas	Mod. Min.	--	Max.	B C	--	A
Areas Disturbed By Mining	Mod.	Max. Min.	--	C	B A	--
Problem Soil Areas	Min.	Mod.	Max.	B	C	A
Agricultural Areas	Min.	Mod.	Max.	B	A	C
Degraded Surface Areas	Mod.	Min.	Max.	B	C	A
Wetland Areas	Max.	Min.	Mod.	B	A	C
Floodprone Areas	Min.	Mod.	Max.	B	A	C
Degraded Groundwater Areas	Mod.	Max.	Min.	B	C	A
Critical Recharge Areas	Mod.	Min.	Max.	C	B	A
Natural Areas	Mod.	Min. Max.	--	B	C A	--
Scenic Waterways	Max.	Mod.	Min.	C	A	B

Table IV - 8: Western SAC Committee Choices On Environmental Management Policy Preferences Input Form

AMENITY	Choices According to Stringency			Choices As Per Form		
	1st	2nd	3rd	1st	2nd	3rd
Steep Slopes	Max.	Mod.	Min.	A	B	C
Geologic Problem Areas	Max.	Mod.	Min.	B	A	C
Geologically Unique Areas	Mod.	Max.	Min.	B	C	A
Mineral Resource Areas	Min.	Mod.	Max.	C	B	A
Areas Disturbed By Mining	Mod.	Min.	Max.	C	A	B
Problem Soil Areas	Mod.	Min.	Max.	C	B	A
Agricultural Areas	Min.	Mod.	Max.	B	A	C
Degraded Surface Water	Mod.	Min.	Max.	B	C	A
Wetland Areas	Min. Max.	--	Mod.	A B	--	C
Floodprone Areas	Min.	Max.	Mod.	B	C	A
Degraded Groundwater Areas	Mod.	Max. Min.	--	B	C A	--
Critical Recharge Areas	Mod.	Max.	Min.	C	A	B
Natural Areas	Mod.	Max.	Min.	B	A	C
Scenic Waterways	Mod.	Min.	Max.	A	B	C

Table IV - 9: SAC Committee Choices on Environmental Management Policy Preferences Input Form

AMENITY	Choices According to Stringency			Choices As Per Form		
	1st	2nd	3rd	1st	2nd	3rd
Steep Slopes	Mod.	Max.	Min.	B	A	C
Geologic Problem Areas	Mod.	Max.	Min.	A	B	C
Geologically Unique Areas	Mod.	Max.	Min.	B	C	A
Mineral Resource Areas	Min.	Mod.	Max.	C	B	A
Areas Disturbed By Mining	Mod.	Min.	Max.	C	A	B
Problem Soil Areas	Min.	Mod.	Max.	B	C	A
Agricultural Areas	Min.	Mod.	Max.	B	A	C
Degraded Surface Water	Mod.	Min.	Max.	B	C	A
Wetland Areas	Max.	Min.	Mod.	B	A	C
Floodprone Areas	Min.	Mod.	Max.	B	A	C
Degraded Groundwater Areas	Mod.	Max.	Min.	A	C	B
Critical Recharge Areas	Mod.	Min.	Max.	B	A	C
Natural Areas	Mod.	Max.	Min.	B	A	C
Scenic Waterways	Mod.	Max.	Min.	A	C	B

Table IV - 10: Eastern SAC At Large Choices On Environmental Management Policy Preferences Input Form

AMENITY	Choices According to Stringency			Choices As Per Form		
	1st	2nd	3rd	1st	2nd	3rd
Steep Slopes	Min.	Mod.	Max.	C	B	A
Geologic Problem Areas	Mod.	Min.	Max.	A	C	B
Geologically Unique Areas	Mod.	Min.	Max.	B	A	C
Mineral Resource Areas	Min.	Max. Mod.	--	C	A B	--
Areas Disturbed By Mining	Mod.	Min.	Max.	C	A	B
Problem Soil Areas	Mod. Min.	--	Max.	C B	--	A
Agricultural Areas	Mod.	Min.	Max.	A	B	C
Degraded Surface Water	Mod.	Max.	Min.	B	A	C
Wetland Areas	Max.	Min.	Mod.	B	A	C
Floodprone Areas	Min.	Max.	Mod.	B	C	A
Degraded Groundwater Areas	Max.	Mod.	Min.	C	B	A
Critical Recharge Areas	Mod.	Min.	Max.	C	B	A
Natural Areas	Mod.	Min.	Max.	A	C	B
Scenic Waterways	Min.	Max.	Mod.	B	C	B

Table IV - 11: Western SAC At Large Choices On Environmental Management Policy Preferences Input Form

AMENITY	Choices According to Stringency			Choices As Per Form		
	1st	2nd	3rd	1st	2nd	3rd
Steep Slopes	Mod.	Max.	Min.	B	A	C
Geologic Problem Areas	Mod.	Max.	Min.	A	B	C
Geologically Unique Areas	Mod.	Min.	Max.	B	A	C
Mineral Resource Areas	Min.	Max.	Mod.	C	A	B
Areas Disturbed By Mining	Mod.	Min.	Max.	C	A	B
Problem Soil Areas	Mod.	Min.	Max.	C	B	A
Agricultural Areas	Mod. Min.	--	Max.	A B	--	C
Degraded Surface Water	Max. Mod. Min.	--	--	A B C	--	--
Wetland Areas	Max.	Min.	Mod.	B	A	C
Floodprone Areas	Min.	Mod.	Max.	B	A	C
Degraded Groundwater Areas	Mod.	Max.	Min.	B	C	A
Critical Recharge Areas	Mod.	Max.	Min.	C	A	B
Natural Areas	Mod.	Min.	Max.	B	C	A
Scenic Waterways	Min.	Max.	Mod.	B	C	A

Table IV - 12: SAC At Large Choices On Environmental Management Policy Preferences Input Form

AMENITY	Choices According to Stringency			Choices As Per Form		
	1st	2nd	3rd	1st	2nd	3rd
Steep Slopes	Mod.	Max.	Min.	B	A	C
Geologic Problem Areas	Mod.	Max.	Min.	A	B	C
Geologically Unique Areas	Mod.	Min.	Max.	B	A	C
Mineral Resource Areas	Min.	Max.	Mod.	C	A	B
Areas Disturbed By Mining	Mod.	Min.	Max.	C	A	B
Problem Soil Areas	Mod.	Min.	Max.	C	B	A
Agricultural Areas	Mod.	Min.	Max.	A	B	C
Degraded Surface Water	Mod.	Max.	Min.	B	A	C
Wetland Areas	Max.	Min.	Mod.	B	A	C
Floodprone Areas	Min.	Mod.	Max.	B	A	C
Degraded Groundwater Areas	Mod.	Max.	Min.	B	C	A
Critical Recharge Areas	Mod.	Max. Min.	--	C	A B	--
Natural Areas	Mod.	Min.	Max.	B	C	A
Scenic Waterways	Min.	Max.	Mod.	B	C	A

Table IV - 13: Number of Times Maximum, Moderate, and Minimum Policies Selected As First, Second, and Third Choice

<table>
<tr><th>E. SAC Committee</th><th>W. SAC Committee</th><th>SAC Committee</th><th>E. SAC At Large</th><th>W. SAC At Large</th><th>SAC At Large</th></tr>
<tr><td colspan="6">Times Maximum First Choice</td></tr>
<tr><td>2</td><td>3</td><td>1</td><td>2</td><td>2</td><td>1</td></tr>
<tr><td colspan="6">Times Moderate First Choice</td></tr>
<tr><td>9</td><td>8</td><td>9</td><td>8</td><td>10</td><td>10</td></tr>
<tr><td colspan="6">Times Minimum First Choice</td></tr>
<tr><td>4</td><td>4</td><td>4</td><td>5</td><td>5</td><td>3</td></tr>
<tr><td colspan="6">Times Maximum Second Choice</td></tr>
<tr><td>4</td><td>4</td><td>6</td><td>4</td><td>6</td><td>7</td></tr>
<tr><td colspan="6">Times Moderate Second Choice</td></tr>
<tr><td>4</td><td>5</td><td>4</td><td>3</td><td>1</td><td>1</td></tr>
<tr><td colspan="6">Times Minimum Second Choice</td></tr>
<tr><td>7</td><td>5</td><td>4</td><td>7</td><td>5</td><td>7</td></tr>
<tr><td colspan="6">Times Maximum Third Choice</td></tr>
<tr><td>8</td><td>6</td><td>7</td><td>8</td><td>5</td><td>6</td></tr>
<tr><td colspan="6">Times Moderate Third Choice</td></tr>
<tr><td>1</td><td>2</td><td>1</td><td>3</td><td>4</td><td>3</td></tr>
<tr><td colspan="6">Times Minimum Third Choice</td></tr>
<tr><td>3</td><td>5</td><td>6</td><td>2</td><td>4</td><td>4</td></tr>
</table>

Table IV - 14: Amenities For Which Maximum Policy Was First Choice

E. SAC Committee	W. SAC Committee	SAC Committee	E. SAC At Large	W. SAC At Large	SAC At Large
Wetland Areas	Steep Slopes	Wetland Areas	Wetland Areas	Wetland Areas	Wetland Areas
Scenic Waterways	Geo. Problem Areas		Degraded Groundwater Areas	Degraded Surface Water	
	Wetland Areas*				

* Tie

Table IV - 15: Amenities For Which Moderate Policy Was First Choice

E. SAC Committee	W. SAC Committee	SAC Committee	E. SAC At Large	W. SAC At Large	SAC At Large
Steep Slopes	Geo. Unique Areas	Steep Slopes	Geo. Problem Areas	Steep Slopes	Steep Slopes
Geo. Problem Areas	Areas Disturbed By Mining	Geo. Problem Areas	Geo. Unique Areas	Geo. Problem Areas	Geo. Problem Areas
Geo. Unique Areas	Problem Soil Areas	Geo. Unique Areas	Areas Disturbed By Mining	Geo. Unique Areas	Geo. Unique Areas
Mineral Resource Areas*	Degraded Surface Water	Areas Disburbed By Mining	Problem Soil Areas*	Areas Disturbed By Mining	Areas Disturbed By Mining
Areas Disturbed By Mining	Degraded Groundwater Areas	Degraded Surface Water	Agricultural Areas	Problem Soil Areas	Problem Soil Areas
Degraded Surface Water	Critical Recharge Areas	Degraded Groundwater Areas	Degraded Surface Water	Agricultural Areas*	Agricultural Areas
Degraded Groundwater Areas	Natural Areas	Critical Recharge Areas	Critical Recharge Areas	Degraded Surface Water*	Degraded Surface Water
Natural Areas		Natural Areas	Natural Areas	Degraded Groundwater Areas	Degraded Groundwater
		Scenic Waterways	Scenic Waterways	Critical Recharge Areas	Critical Recharge Areas
				Natural Areas	Natural Areas

* Tie

Table IV - 16: Amenities For Which Minimum Policy Was First Choice

E. SAC Committee	W. SAC Committee	SAC Committee	E. SAC At Large	W. SAC At Large	SAC At Large
Mineral Resource Areas* Problem Soil Areas Agricultural Areas Floodprone Areas	Mineral Resource Areas Agricultural Areas Wetland Areas* Floodprone Areas	Mineral Resource Areas Problem Soil Areas Agricultural Areas Floodprone Areas	Steep Slopes Mineral Resource Areas Problem Soil Areas* Floodprone Areas Scenic Waterways	Mineral Resource Areas Agricultural Areas* Degraded Surface Water* Floodprone Areas	Mineral Resource Areas Floodprone Areas

*Tie

Table IV - 17: Comparison of Responses Among SAC Committee, Eastern SAC, and Western SAC on Environmental Value Preferences Input Form--Conservation of Resource Values

Resource Value	SAC Committee Total Points	%	Eastern SAC Committee Total Points	%	Western SAC Committee Total Points	%
Coal Resources	12	4.78%	5	3.55%	7	6.36%
Other Mineral Resources	14	5.58%	7	4.96%	7	6.36%
Agricultural Land	47	18.73%	25	17.73%	22	20.00%
Water Resources	82	32.67%	48	34.04%	34	30.91%
Forest Resources	69	27.49%	42	29.79%	27	24.55%
Land Resources (for development)	27	10.76%	14	9.93%	13	11.82%

Table IV - 18: Comparison of Responses Among SAC Committee, Eastern SAC, and Western SAC on Environmental Value Preferences Input Form--Preservation of Amenity Values

Amenity Value	SAC Committee Total Points	%	Eastern SAC Committee Total Points	%	Western SAC Committee Total Points	%
Recreation Areas	47	18.80%	24	17.14%	23	20.91%
Geologically Unique Areas	33	13.20%	17	12.14%	16	14.55%
Historic and Scenic Areas	40	16.00%	17	12.14%	23	20.91%
Fishing and Boating Areas	56	22.40%	34	24.29%	22	20.00%
Forest and Game Lands	63	25.20%	40	28.57%	23	20.91%
Steep Slope Areas	11	4.40%	8	5.71%	3	2.73%

Table IV - 19: Comparison of Responses Among SAC Committee, Eastern SAC, and Western SAC on Environmental Value Preferences Input Form--Protection of Ecological Values

Ecological Value	SAC Committee Total Points	%	Eastern SAC Committee Total Points	%	Western SAC Committee Total Points	%
Water Conservation Area	43	17.41%	29	21.17%	14	12.73%
Wetlands	32	12.96%	18	13.14%	14	12.73%
Critical Groundwater Recharge Areas	49	19.84%	17	12.41%	32	29.09%
Wildlife	38	15.38%	28	20.44%	10	9.09%
Vegetation	35	14.17%	23	16.79%	12	10.91%
Natural Areas	50	20.24%	22	16.06%	28	25.45%

Table IV - 20: Comparison of Responses Among SAC Committee, Eastern SAC, and Western SAC on Environmental Value Preferences Input Form--Upgrading of Degraded and/or Hazardous Areas

Degraded and/or Hazardous Areas	SAC Committee Total Points	%	Eastern SAC Committee Total Points	%	Western SAC Committee Total Points	%
Geologic Problem Areas	7	2.80%	2	1.44%	5	4.50%
Areas Disturbed By Mining	82	32.80%	58	41.73%	24	21.62%
Problem Soil Areas	14	5.60%	8	5.76%	6	5.41%
Floodplains	28	11.20%	8	5.76%	20	18.02%
Degraded Surface Water	66	26.40%	39	28.06%	27	24.32%
Degraded Groundwater	49	19.60%	24	17.27%	25	28.52%
Steep Slope Areas	4	1.60%	0	0.0%	4	3.60%

Table IV - 21: Comparison of Responses Among SAC At Large, Eastern SAC At Large and Western SAC At Large on Environmental Value Preferences Input Form--Conservation of Resource Values

Resource Value	SAC At Large Total Points	%	E. SAC At Large Total Points	%	W. SAC At Large Total Points	%
Coal Resources	35	13.94%	15	15%	20	13.25%
Other Mineral Resources	34	13.55%	12	12%	22	14.57%
Agricultural Land	56	22.31%	21	21%	35	23.18%
Water Resources	58	23.11%	25	25%	33	21.85%
Forest Resources	48	19.12%	20	20%	28	18.54%
Land Resource (for development)	20	7.97%	7	7%	13	8.61%

Table IV - 22: Comparison of Responses Among SAC At Large, Eastern SAC At Large and Western SAC At Large on Environmental Value Preferences Input Form--Preservation of Amenity Values

Amenity Value	SAC At Large Total Points	%	E. SAC At Large Total Points	%	W. SAC At Large Total Points	%
Recreation Areas	40	16%	17	17%	23	15.33%
Geologically Unique Areas	36	14.40%	17	17%	19	12.67%
Historic and Scenic Areas	52	20.80%	23	23%	29	19.33%
Fishing and Boating Areas	35	14.00%	12	12%	23	15.33%
Forest and Game Lands	52	20.80%	19	19%	33	22.00%
Steep Slope Areas	35	14.00%	12	12%	23	15.33%

Table IV - 23: Comparison of Responses Among SAC At Large, Eastern SAC At Large, and Western SAC At Large on Environmental Value Preferences Input Form--Conservation of Ecological Values

Ecological Values	SAC At Large Total Points	%	E. SAC At Large Total Points	%	W. SAC At Large Total Points	%
Water Conservation Areas	48	19.43%	17	17%	31	21.09%
Wetlands	37	14.98%	14	14%	23	15.65%
Critical Groundwater Recharge Areas	53	21.46%	23	23%	30	20.41%
Wildlife	38	15.38%	15	15%	23	15.65%
Vegetation	32	12.96%	16	16%	16	10.88%
Natural Areas	39	15.79%	15	15%	24	16.33%

Table IV - 24: Comparison of Responses Among SAC At Large, Eastern SAC At Large, and Western SAC At Large on Environmental Value Preferences Input Form--Upgrading of Degraded and/or Hazardous Areas

Degraded and/or Hazardous Areas	SAC At Large Total Points	%	E. SAC At Large Total Points	%	W. SAC At Large Total Points	%
Geologic Problem Areas	21	8.4%	7	6.93%	14	9.4%
Areas Disturbed By Mining	51	20.4%	22	21.78%	29	19.46%
Problem Soil Areas	32	12.8%	10	9.90%	22	14.77%
Floodplains	31	12.4%	14	13.86%	17	11.41%
Degraded Surface Water	43	17.2%	20	19.8%	23	15.44%
Degraded Groundwater	46	18.4%	20	19.8%	26	17.45%
Steep Slope Areas	26	10.4%	8	7.92%	18	12.08%

Table IV - 25: Comparison of Responses Among SAC At Large, Eastern SAC At Large, and Western SAC At Large on Environmental Value Preferences Input Form--Conservation of Resource Values, Preservation of Amenity Values, Protection of Ecological Values, and Upgrading of Degraded and/or Hazarous Areas

Category	SAC Committee		E. SAC		W. SAC	
	Total Points	%	Total Points	%	Total Points	%
Conservation of Resource Values	59	27.96%	32	28.83%	27	27.00%
Preservation of Amenity Values	37	17.54%	20	18.02%	17	17.00%
Protection of Ecological Values	57	27.01%	21	18.92%	36	36.00%
Upgrading of Degraded and/or Hazardous Areas	58	27.49%	38	34.23%	20	20.00%

CHAPTER V

DISCUSSION

A. STUDY CONSULTANT'S EVALUATION

Evaluation of use of the preference input forms was in the format of an interview by the investigator with Julie A. Kascal, COWAMP Area 8 Public Participation Coordinator. The main topics covered in the interview were: 1) whether the input forms provided more useful information than other commonly employed feedback methods as discussed in Chapter I, 2) the kinds of information generated by response to the forms, 3) whether Ms. Kascal would consider using the forms again, and 4) Ms. Kascal's answer to the question posed in the thesis problem statement.

When asked if use of the forms provided more useful information than observation of meetings, Ms. Kascal responded:

> Yes, we got concrete information out of this. I don't think that kind of thing comes out of discussion because you have just a few people discussing. This way you have essentially about fifty opinions.

Ms. Kascal's answer to the question, "Did the forms provide more useful information than majority voting?", was:

> Yes. People responded with their individual opinions instead of being influenced by a show of hands.

When discussing the response to the input forms, Ms. Kascal identified several types of information which were provided. She indicated that:

1. The forms provided information on management policy preferences for inclusion in Alternative Environmental Future (AEF) formulation as required in the AEF methodology (Appendix A). She stated:

> From those groups of policies (which were chosen as high preferences on the Environmental Management Policy Preferences input form) we can adjust for conflicts and create AEF's.

2. The forms provided information indicating which Environmental Amenities the advisory committees felt were and were not important. Ms. Kascal said:

> We certainly know what the SAC's view as key environmental areas.
>
> We know that there is a low priority on protecting steep slopes. Therefore, if we find that most of our environmental constraints are steep slopes, we won't have to worry about them.

3. The forms provided information showing areas of disagreement or conflict. Citing instances where the SACs' choices for management policies were tied, Ms. Kascal noted:

> That kind of material indicates areas where we have two conflicting opinions so we can realize we have to look closely at those areas. It is good to know this now rather than at a later meeting. This would be very useful in the way the AEF's were designed.

4. The forms provided information indicating the SAC's prefer moderate management policies. Ms. Kascal said:

> What the SAC's want is a moderate policy across the board. Since we've identified the fact that most people want to take a moderate approach no matter which value it is, maybe it is not necessary to say that one is more valuable than the other.

5. The forms provided information which caused Ms. Kascal to question the representativeness of those people who attended SAC meetings. Ms. Kascal stated:

> I was interested in the diversity between the forms that were mailed out and the ones from people at the meetings. The ones from the meetings seemed to emphasize water resources where the ones that were mailed out picked up other values. Now that could mean that the people coming to the committee

> meetings are more keyed into water resources, or it could mean that they're not representative of what the people in the Study Area are willing to buy or not. It was very interesting that the mail-out people picked up agricultural interests and nobody else did. This has helped us identify concerns that are not being identified at meetings.

6. The forms provided information to explain why and how AEF's are formulated. Ms. Kascal said:

> When we show the SAC's an AEF and they say, "Why in the world did you do that?", we can say, "This is how it came about. You have an opportunity to change your opinions and ideas but this is why we came up with what we did. It wasn't just an arbitrary thing that the consultant did."

When questioned if she would consider using input forms at other points in the COWAMP planning process, Ms. Kascal replied:

> Maybe at the last stage of the AEF's we might want to do this again and also in COWAMP Chapter 12 and 13 where we select the final water quality management plan. One of our major considerations would be cost criteria because our budget is extremely tight.

Ms. Kascal expressed disappointment that schedule slippages had prevented experimenting further with use of the input forms. She stated:

> The fact that we did get a lot of concrete information tends to make me feel that if we had been able to continue the process, we would have gotten a lot more information.

The question posed in the thesis problem statement was: Do two preference input forms used for the Study Advisory Committees (SAC's) in COWAMP Study Area 8 provide a method of obtaining meaningful and useful input for the planner as a means for incorporating advisory committee preferences into the planning process?

To this question, Ms. Kascal replied:

> Yes. I think they (the input forms) are going to be helpful to us.

In summary, Ms. Kascal's evaluation of the preference input forms shows that in her opinion use of the forms: 1) provided useful information of several types, 2) was a better method of obtaining information than observation of meetings, written comments, or majority voting, 3) was successful enough to be considered for later use, and 4) was a useful and meaningful method of obtaining feedback from the SAC's.

B. INVESTIGATOR'S CONCLUSIONS AND SUGGESTIONS FOR FURTHER STUDY

This thesis project has been a practical exercise in the use of one type of method--the preference input form--to enable a natural resources planner to obtain feedback from a citizen advisory committee, a method designed 1) to provide useful information and 2) to minimize domination of committee feedback by a few committee members. According to the Study Consultant's evaluation, use of the forms met both design criteria.

Although difficulties were encountered when the input forms were presented to the Western SAC Committee, the investigator believes they were not a reaction to the forms themselves but rather were the result of a combination of factors discussed in the "Debriefing" section of Chapter III. This combination of factors was not present at the Eastern SAC meeting and no difficulties occurred with use of the forms there.

The investigator has concluded--based on the Study Consultant's evaluation and the investigator's own observations--that the preference input form technique was successful enough in COWAMP Study Area 8 to merit further use of input forms on an experimental basis both in COWAMP and in other planning efforts.

Suggestions which may be helpful to planners or researchers wishing to use input forms are:

1. Carefully establish goals and objectives regarding the specific information which is being sought before constructing the forms.
2. Design forms which are simple for respondents to complete.
3. Design forms which can be tabulated rapidly.
4. Pilot test forms to determine items which cause difficulties for respondents and to identify potential tabulacion problems.
5. Provide respondents with adequate information on the subject about which they are being asked to make decisions.
6. Provide clear instructions in both written and verbal format.
7. Fully inform respondents of how the information they are providing is to be used.
8. Guarantee respondents' anonymity.

The investigator knows of no planning studies other than COWAMP Study Area 8 in which preference input forms have been used to obtain feedback from citizen advisory committees. Based on this limited use, it is not possible to predict that input forms would be useful on a consistent basis. Therefore, further investigation of the use of input forms is needed.

A fruitful method of investigation might be the case study. Case study research would have the advantage of demonstrating the complex interrelationships between committee feedback and the planning process as a whole.

Investigations also could be conducted to answer specific questions such as:

1. Do the benefits of using input forms outweigh the costs which are added to a planning study when input forms are used?

2. Which points in the planning process are most appropriate for use of input forms?

3. Which kinds of questions on input forms provide the most useful information?

4. Which kinds of questions on input forms are preferred by respondents?

In addition, research could be conducted to determine if input forms are useful as a method for obtaining feedback from citizen groups other than advisory committees. For example, would input forms be useful for a public meeting or workshop?

A related research area would be investigations of other feedback techniques such as Delphi exercises, nominal group techniques, matrices, and brainstorming/brainwriting in comparison to input forms.

Although the investigator has concluded that use of the preference input forms was successful enough to merit further investigation, the investigator expresses caution regarding drawing specific conclusions from the results of responses to the input forms.

The SAC's were not selected in a manner which would enable them to be considered representative of the population of Study Area 8. In a statistical sense, each SAC must be considered as a population rather than as a sample of a population. Tests to show significant difference (in a statistical sense) must be performed on data from samples and not populations. Therefore, no such tests could be used. Without the use of statistical tests, it is impossible to determine how meaningful the results are.

Anyone interpreting the results from the responses to the input forms should be aware that the meaningfulness of the results cannot be established.

C. INVESTIGATOR'S SUGGESTIONS FOR MODIFICATIONS IN SAC MANAGEMENT IN COWAMP STUDY AREA 8

Regardless of the type of technique a planner uses to obtain feedback from citizen advisory committees--be it input forms or some other method--the feedback does not occur in a vacuum. Feedback is a part of general committee performance. General committee performance can be partially controlled by the planner as he/she manages the committee.

During the eight-month course of this thesis project the investigator has observed the performance and management of the Study Advisory Committees (SAC's) in COWAMP Study Area 8. As a result, the investigator has identified certain problem areas and potential problem areas in SAC management. This section discusses a few of these problem areas and contains suggestions for modifications in SAC management.

The contents of this section are solely the opinions of the investigator based on her knowledge and experience.

1. Committee Interaction

Interaction is vital to communication, and communication in turn is vital to the success of public participation efforts.

Interaction in COWAMP Study Area 8--both among SAC members and between the SAC's and the Study Consultant--has been at a low level through May 1976 of the study. This lack of interaction probably is the result of two factors: 1) General meeting conditions, and 2) The long period of time which elapses between SAC meetings (up to five months).

The length of SAC meetings has been limited to two or three hours.

Generally, a feeling of haste has been apparent. There has been no time for discussion during committee meetings. People have left the meeting places immediately after meetings were adjourned.

Coffee breaks have been short and in some cases cancelled to speed completion of meetings. Therefore, committee members and the Study Consultant have had little opportunity to develop a rapport in informal discussion.

The meeting room used for the Eastern SAC consists of a table on one end of the room where a government unit generally holds meetings and stationary observation chairs on the other end of the room. When the Eastern SAC meets in this room, the committee is divided into two parts with the effect that people on one end of the room do not talk to the people on the other end of the room.

Long intervals between meetings probably have affected continuity from meeting to meeting. There appears to have been some confusion about what occurred at earlier meetings. There is no feeling of continuity from one meeting to the next.

Several steps could be taken to improve interaction. These are:

1. Hold longer meetings extending from morning to late afternoon with SAC members and the Study Consultant staff eating lunch together. This step would provide the opportunity for increased discussion and interaction both during the meetings and during the lunch break.

2. Plan specific discussions for the SAC's on general topics related to COWAMP. These kinds of discussions might be particularly effective if the SAC's could break up into small discussion groups with a trained discussion leader assigned to each and then later could meet again as the whole committee to share ideas generated by the small group discussions.

3. Find a better room in which to hold Eastern SAC meetings.

4. Make frequent informal contacts, by telephone or in person, from the Study Consultant staff to SAC members. In one-to-one discussion situations, some SAC members may identify concerns which they did not wish to identify publicly at meetings. These concerns could later be raised at meetings by the Study Consultant.

5. Encourage the SAC's to establish COWAMP speakers' bureaus manned by SAC members. This step would encourage those members who are participating as speakers to understand COWAMP better and would give the SAC's a concrete rationale for existance during times when the study is going slowly and SAC input is not being sought.

6. Hold meetings more frequently and on a regular basis even during periods when the planning study is moving slowly. Meetings at which no committee feedback is needed could be devoted to general COWAMP discussion topics, to the speakers bureau, or obtaining SAC members' suggestions for the Study Area public participation program.

7. Keep the SAC's informed of the status of the planning study by mail, especially during months when no meetings are held.

2. Information For The Committees

As the COWAMP Study Area 8 planning effort moves into Alternative Environmental Future (AEF) formulation and later into the stages at which design alternatives will be presented, SAC members will need to make more and more decisions. When people make decisions, they must have an information base on which to base those decisions. Therefore, the Study Consultant should increase the amount of information being received by the SAC's. The information should be both verbal and written. Great care should be taken to see that the information is presented in layman's terms rather than in technical terminology.

3. Composition of the SAC's

An issue which should be faced squarely in Study Area 8 is the composition of the groups which attend SAC meetings. The SAC's have not been formally appointed. Anyone in the Study Area can participate in SAC meetings. This arrangement creates the problem of potential domination of SAC meetings by special interest groups, a situation commonly called "packing." Should packing occur, any committee feedback obtained could be non-representative of the preferences of residents of the Study Area. The Study Consultant is aware of the potential problem. However, if SAC's do become packed, awareness of the situation will not necessarily enable the Study Consultant to disregard SAC input. To eliminate the potential problem of packing, permanent SAC committee members could be appointed by an appropriate agency such as the Pennsylvania Department of Environmental Resources (which is the COWAMP study sponsor) or the Office of the Governor.

4. Staff Time

Most of the problems and potential problems could have been or can be avoided by an increase in time devoted to SAC management. The public participation coordinator has responsibilities for the public participation program in COWAMP Study Areas 8 and 9 plus various planning responsibilities for other projects. If the Study Consultant wishes to institute modifications in SAC management in Study Area 8, then either additional staff must be assigned to the project or some of the public participation coordinator's responsibilities must be assigned to someone else.

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APPENDIX A

THE ALTERNATIVE ENVIRONMENTAL FUTURES PROCESS

Prepared by

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April 1976

THE ALTERNATIVE ENVIRONMENTAL FUTURES PROCESS

Definition and Purpose

An Alternative Environmental Future (AEF) is simply a possible future environment. It is created by combining a set of policies related to several environmental and developmental factors which affect the future environment of the study area. Different combinations of policies result in different AEF's.

Each AEF will be presented in the form of a "scenario" which is a brief description of the study area by the year 2000. The scenario describes the policies used to develop it, an estimation of the consequences of these policies and the cause-effect relationships.

For purposes of illustration, let's take an oversimplified example of AEF creation in personal terms. Suppose you and your spouse are considering moving to a new home. You each put together a list of characteristics you would like in the new home. Since the two of you have different values about some things, the items on your list are not necessarily the same. A few items which appear when the two of you combine your lists are:

Easy or little home maintenance
Room for a large vegetable garden
Short commute to work downtown
Room to entertain formally
Little or no yard maintenance

Obviously, some of the items on the list are incompatible.

A combination of the items calling for easy home and yard maintenance and a short commute to work might point to your future home as an apartment in a highrise downtown. On the other hand, a combination of the items calling for room for a vegetable garden and facilities to entertain might point to your future home as a house with a large living and dining room and a large lot in the suburbs.

The items on the list you and your spouse compiled are roughly analagous to the COWAMP policy parameters, while the house and apartment are roughly analagous to AEFs.

Primarily, the AEFs are a planning tool. They permit the selection of alternative management policies for selected environmental elements (e.g., steep slopes, critical recharge areas) and then the analysis of the impacts of these policies on such factors as environmental quality, economic and social values, and wastewater management costs. They provide an opportunity to consider various environmental policies early in the COWAMP process so that subsequent water quality management decisions can reflect the preferred policies. The selection of a final plan (and specific implementation actions) for the study area can be evaluated in terms of the study area's desired environmental future.

The AEFs will become the basis for the development of physical system alternatives in COWAMP Chapter X and the selection of the final management plan in Chapters XII and XIII. Although it will be necessary to consider alternative policies for numerous components of a future environment, including population growth, economic activity and land use, the AEFs should not be viewed as comprehensive development plans or as a set of regulations to bring the changes analyzed in the scenarios.

Methodology

The formulation of the AEFs will take place over a period of time involving a series of meetings with the advisory committees. The purpose of these meetings will be to obtain local policy preferences and selection of the final AEFs. For this reason, the methodology for the AEFs is expected to be evolutionary. Changes in the scenario formulation and evaluation techniques will probably be required as weaknesses or strengths in the approach are identified and as local thinking on policy issues either emerges or changes.

The major stages of the AEF process are:

- Development of Goals and Objectives
- Development of Policy Sets
- Identification of Public Preferences for Alternative Policies
- Preparation of AEF Scenarios
- Evaluation of Impacts for All Scenarios
- Comparative Evaluation of Scenarios
- Selection of Final AEFs

Figure I, "AEF Process for Study Area 8" describes the flow of the AEF process, indicating the many types of inputs and activities required to develop the AEFs. Each of these steps will be discussed in more detail, but the flow diagram may be used as a guide to the overall process and sequence of activities.

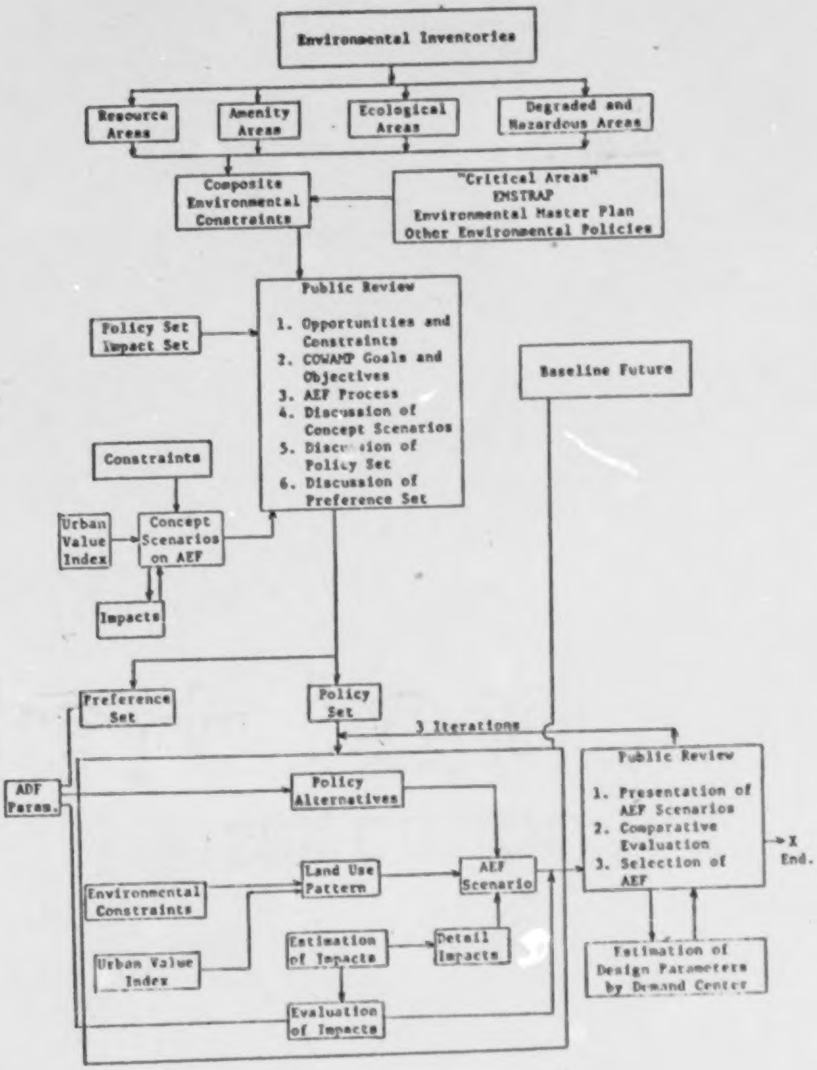
As with the present environment, any future environment includes many elements. Equally important are the interactions between these components. The AEF concept does provide a mechanism for identifying and analyzing such interactions and for considering the cause-effect relationships between them. Therefore, the alternative futures are being viewed from the combined aspects of environmental conservation and urban/regional development. The formulation of each AEF will involve stating goals and objectives for both aspects. Similarly, the policy set for each AEF will be composed of management policies for both environmental values and development concerns. The impact evaluation will consider effects on environmental quality as well as study area growth and development pattern.

Development of Goals and Objectives

Goals and objectives for possible future environments will be drawn from numerous sources at the local, regional, state and federal levels. Some of these existing goals may be refined or changed during the AEF process, while others may

FIGURE 1

AEF PROCESS FOR STUDY AREA 8


Environmental Inventories
Resource Areas
Amenity Areas
Ecological Areas
Degraded and Hazardous Areas
Composite Environmental Constraints
"Critical Areas"
EMSTRAP
Environmental Master Plan
Other Environmental Policies
Public Review
1. Opportunities and Constraints
2. COWAMP Goals and Objectives
3. AEF Process
4. Discussion of Concept Scenarios
5. Discussion of Policy Set
6. Discussion of Preference Set
Policy Set
Impact Set
Baseline Future
Constraints
Urban Value Index
Concept Scenarios on AEF
Impacts
Preference Set
Policy Set
3 Iterations
ADF Param.
Policy Alternatives
Land Use Pattern
AEF Scenario
Environmental Constraints
Urban Value Index
Estimation of Impacts
Detail Impacts
Evaluation of Impacts
Public Review
1. Presentation of AEF Scenarios
2. Comparative Evaluation
3. Selection of AEF
X
End.
Estimation of Design Parameters by Demand Center

emerge as the alternatives are considered. The major source for existing goals and objectives for selected functional areas are:

1. Federal policy on
    a. Water quality
    b. Air quality
    c. Land conversation
2. A land policy program for Pennsylvania
3. Pennsylvania's Environmental Master Plan and DER's Environmental Management Strategies and Policies (EMSTRAP)
4. Pennsylvania's target economy
5. Reports on goals and objectives from NWPRPC and NCPRPC
6. Appalachian Regional Development Policy
7. Pennsylvania Land Development Policy Study
8. County Comprehensive Planning Reports
9. Policy report on Allegheny National Forests

Development of Policy Sets

A particular policy set is the basis for formulating an AEF. There are two categories of policies: (1) policies for environmental factors (or parameters) and (2) policies for development parameters.

The environmental parameters will be derived from the environmentally critical areas discussed in Chapter IV. For the AEF process, these critical areas will be grouped into four types: (1) resource areas, (2) ecologically significant areas, (3) amenity areas, and (4) degraded and/or hazardous areas. These are as follows:

Resource Areas

_____Coal Resources

_____Other Mineral Resources (oil, sand, gravel)

_____Agricultural Land

_____Water Resources

_____Forest Resources

_____Land Resource (for development)

Ecologically Significant Areas

_____Water Conservation Area

_____Wetlands

_____Critical Ground Water Recharge Areas

_____Wildlife

_____Vegetation

_____Natural Areas

Amenity Areas

_____Recreation Areas

_____Geologically Unique Areas

_____Historic and Scenic Areas

_____Fishing and Boating Areas

_____Forest and Game Lands

_____Steep Slope Areas

Degraded and/or Hazardous Areas

_____Geologic Problem Areas

_____Areas Disturbed by Mining

_____Problem Soil Areas

_____Floodplains

_____Degraded Surface Water

_____Degraded Ground Water

_____Steep Slope Areas

The development policy factors to be considered are:

1. Level of development (population, employment growth)
2. Distribution of development (land use pattern and density)
3. Activity structure (for key water related uses)
    - Agriculture
    - Mining (strip and deep mines)
    - Steel Industry
    - Chemical Industry
    - Energy Production

Within these areas, ranges of policy action are possible. For example, policies may be developed that will result in either declining, static or increasing population employment or increases or decreases in certain industrial activities. For the three development policy parameters, the following table indicates the variations of policy alternatives:

Development Policy Parameters	Range of Policy Alternatives		
Population and employment	Decline	Static	Increase
Distribution	Dispersed	Concentrated	
Agriculture	Decline	Static	Increase
Mining	Decline	Static	Increase
Steel Industry	Decline	Static	Increase
Chemical Industry	Decline	Static	Increase
Energy Production	No	Yes	
Outdoor Recreation	Static	Increase	

Because of the large number of alternatives which would result from considering simultaneously all variations of development policy parameters, we propose to consider the three policy areas sequentially. In other words, we will deal first with level of growth; second, spatial distribution; and finally, the activity structures.

The land use patterns evolving from the consideration of spatial distribution will be used as a tool for evaluating the impact of the AEFs. They will not represent any final land use plans or commitments to any one land use pattern. This is particularly true since any future environment is evolving constantly and must remain flexible and responsive to changes in policy, public preferences and future technology.

Identification of Public Preferences for Alternative Policies

The identification and assessment of public preferences for alternative environmental and developmental policies will continue throughout the AEF process. The main objective of this activity is to gain as much local input and direction as possible and to provide opportunity to resolve conflicts between policy alternatives. The initial effort to obtain local policy preferences was made during the review of Chapter IV. At that time members of the advisory committees and local elected officials were asked to consider three alternative management policies for each of the environmentally critical areas identified in Chapter IV and then to indicate their order of preference (first, second, third) for the stated policies. The committees were also asked to indicate their comparative preference for each of the environmental concerns as they were grouped by resource areas, ecologically significant areas, amenity areas and degraded and/or hazardous areas.

The input from these exercises will be included in the AEF preference set (refer to Figure I). This will be expanded by adding preferences for developmental policies and additional refinements of policy selectors for environmental concerns. By the conclusion of the AEF process, the set should be representative of locally acceptable policies for the environmental and development concerns. The two APOs for the study area and the county planning agencies also will be active in identifying particular areas of concern in their regions and in obtaining policy preferences from their constituents.

The alternative policies and preferences for each policy parameter will be accumulated, as shown below, into an "AEF Policy Framework." From this framework, consistent sets of policy parameter will be drawn to formulate the AEFs. Initially the AEF objectives and policies will be assigned at the study area level but will be refined to the county, hydrological subbasin or demand center where necessary.

AEF POLICY FRAMEWORK

Policy Parameter	Alternative Management Policies			Order of Preference for Alternative Policies		
	Policy A	Policy B	Policy C	First	Second	Third
I Environmental						
1. Steep Slope						
2. Floodplains, etc.						
II Development						
1. Population Growth						
2. Employment Growth						
3. Distribution, etc.						

Preparation of the AEF Scenarios

The technical preparation of the AEF scenarios begins with the preparation of a series of three maps: (1) Composite Map of Environmental Constraints, (2) Urban Value Index Map, and (3) Existing Market Value of Real Estate Map.

The Composite Map of Environmental Constraints will be prepared by first grouping the Chapter IV environmental inventory maps according to the four environmental categories (resource areas, ecologically significant, etc.). These, in turn, as overlays will form one map showing all environmental constraints in the study area. The degree of these constraints will be determined by the policies developed for the critical areas both locally and at the state and federal levels.

The map of the Urban Value Index (UVI) will be developed by assigning a numerical value to each demand center in the study area using the following criteria:

(1) Accessibility to major urban centers and environmental amenity areas;

(2) Land characteristics (areas with constraints to development such as problem soils, steep slopes);

(3) Availability of public utilities (water, sewer and solid waste).

Areas within a county will be compared to each other first and a relative value assigned, reflecting the area's potential for development (based on the above criteria). Then an evaluation of each county's development potential will be made by comparing the counties in the study area to one another.

The final map, "Existing Market Value of Real Estate," will be based on 1973 data of estimated market values of real estate within the study area and will indicate market demand.

Both maps will be needed to provide a check and because different factors play a role in each; i.e., real estate values may reflect a high tax rate, or may be artificially high because of a surrounding development. Each area's development potential will be compared on both maps; if a discrepancy is found, we will re-evaluate the urban index map.

These maps and the AEF policy framework will provide the data required to begin the AEF scenario preparation. The initial formulation of the AEFs will be the "conceptual scenarios." The environmental policy sets for these scenarios will be developed primarily from the constraints map and existing state policies and regulations. Some local policies will be obtained from the written form completed by the study committees at the Chapter IV review meetings. The existing state policies were compiled by DER and the AEF Subgroup into the "Environmental Management Strategies and Policies" (EMSTRAP).

The conceptual scenarios will select policy sets to represent two diverse options: maximum and moderate environmental conservation and preservation. Development alternatives at this point will be confined to spatial distribution, choosing between either a dispersed pattern of settlements or a concentrated pattern of settlements. The choices on spatial distribution will relate primarily to residential population; the employment location initially will be considered concentrated at critical places (e.g., existing urban areas). Choices related to growth rates and key water-related activities will be held constant and will be based on past or current trends (same as baseline future).

Thus, the four conceptual scenarios will consist of the following combined options for environmental and developmental characteristics:

	Environmental Conservation	Development Distribution
AEF 1	Maximum	Dispersed
AEF 2	Moderate	Dispersed
AEF 3	Maximum	Concentrated
AEF 4	Moderate	Concentrated

Figure 2 indicates the format used to prepare the policy sets for the AEFs. For each parameter shown in the left column, policy alternatives will be developed, thus formulating an AEF. It is important to note that the policies for an AEF will be consistent; that is, there will not be a policy selected for one parameter that conflicts with one in another parameter.

The first iteration of the AEFs will be the presentation of these conceptual scenarios to the study committees. They will become a basis for discussion of policy alternatives and local preferences. When this input is received, the scenarios will be expanded and modified; new AEFs may be formulated and others discarded. This activity will represent the completion of the first iteration.

In the following iterations, the impacts of the environmental policies are estimated and additional development policies for growth rate and activity structure added. These are then reviewed and discussed with the study committees and their input obtained for specific changes. Changes also may be required in the initial policy sets after consideration of the probable impacts. The AEF scenarios will be synthesized and modified throughout the process, and the Policy Advisory Committee (PAC) will be asked to negotiate the final policy sets for the AEFs.

Evaluation of Impacts of the AEFs

An AEF scenario is completed with the estimation and evaluation of the effects of the selected policies on environmental quality, social and economic value and implementation costs. There will be specific factors considered under each of these broad categories which will be called the impact parameters. Figure 3 shows the type of impact evaluation format that will be used. The study consultant will rank order each AEF in terms of each individual parameter. If rank ordering on the study level is found difficult, then it will be done on county levels where necessary and summarized for the total study area.

Gilbert bond

FIGURE 3

IMPACT ANALYSIS FORMAT FOR THE AEFs

IMPACTS		AEF_1	AEF_2	AEF_3	AEF_4
Environmental Quality	Resource Value				
	Amenity Value				
	Ecologic Value				
	Degraded and Hazardous Areas				
Social and Economic Value	1. Level of Open Space				
	2. Service Level				
	3. Density				
	4. Accessibility				
	5. Community Structure				
	6. Land Value				
	7. Regional Income				
	8. Job Opportunities				
Cost	1. Cost of Utility and maintaining water quality				
	2. Cost of Development				
	3. Energy Cost				
	4. Institutional Requirements				
	5. Management Constraints				

After evaluation of the impact parameters, a final estimation will be made by demand center of population, employment, land use, waste flows and loads for the final AEFs and the baseline future. A generalized land use map will be developed based on the growth level and pattern of distribution of population and activities.

Comparative Evaluation and Selection of the AEFs

In order to select the final AEFs, it is necessary to develop a means for comparing the AEFs, in terms of their effectiveness in reaching the desired goals and objectives and the degree of impact they have on future conditions and values. The comparative evaluation requires two elements: (1) the technical evaluation by the study consultant involving the ranking of each AEF on individual impact elements (refer to Figure 3); and (2) the public's relative valuation between the 17 impact elements. In other words, the public's task will be to decide what value they attach to resource conservation in comparison to cost of utility or amount of open space and so forth through all the impact elements. These values will then be translated into numerical weights for each impact parameter. By multiplying the technical ranking by the weighted value of the parameter, a composite rating is obtained which enables the public to select AEFs based on comparative value. Figure 4 illustrates how this evaluation would take place. As shown, the ratings for each parameter can be summed into scores for each AEF according to the general categories of environmental quality, economic and social values and costs and, finally, a total numerical score for the AEF considering all factors.

FIGURE 4

SAMPLE EVALUATION SHEET

	Environmental Quality			Economic & Social Values			Costs		Summation of Evaluation Scores			
	W_1 P_1	W_2 P_2	. .	. .	. .	. .	. .	W_n P_n	Environmental Quality	Socio-Economic Values	Cost	Total All Values
AEF 1												
AEF 2												
AEF 3												
AEF 4												
AEF_n												

W = Weight based on value preference determined by public

P = Parameter

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25% cotton

APPENDIX B

PREFERENCE INPUT FORMS USED IN THE STUDY

ENVIRONMENTAL MANAGEMENT POLICY PREFERENCES

(Chapter 4 Public Input Form)

As we have seen in the slide presentation and in Chapter IV, certain environmental factors have an effect on water quality. A variety of methods can be used to manage each of the environmental amenities and critical areas. In the attached chart several amenities are listed in the lefthand column with three possible management policies listed in the other columns. We want to know how you feel about certain types of management methods for each amenity. Please indicate your management preference by placing a "1", "2", or "3" in the upper left hand corner of each box containing a policy alternative. The number "3" stands for the method you most prefer; the number "2" stands for the method you prefer second; the number "1" stands for the method you least prefer.

3 = highest preference
2 = medium preference
1 = least preference

Please be sure to mark all three boxes for each environmental amenity and value.

ENVIRONMENTAL MANAGEMENT POLICY PREFERENCES
(Chapter 4 Public Input Form)

AMENITY	POLICY ALTERNATIVE "A"	POLICY ALTERNATIVE "B"	POLICY ALTERNATIVE "C"
Steep Slopes	No development	Development limited to contour plowing agriculture and/or forest use	Development limited to low density residential accompanied by requirements for erosion, drainage control and stability control
Geologic Problem Areas	Development limited to low density residential with requirements for special construction to assure stability, and requirements for public sewerage, public water supply and solid waste management	No development	Development limited to low density residential plus low rise structures for commercial use with requirements for special construction to assure stability and requirements for public sewerage, public water supply and solid waste mgt.
Geologically Unique Areas	Limited development with comprehensive environmental controls	Development only for scientific, educational and recreational use	No development
Mineral Resource Areas	Place in reserve for strictly controlled extractive operations with restoration to natural (original) condition	Resource extraction with requirements for restoration to natural condition	Resource extraction under strict conditions (performance bonding, etc.) with requirements for restoration which would enable future beneficial use of the land, but not necessarily to natural condition
Areas Disturbed By Mining	Restore for open space use and other limited development but not to natural condition	Restore to natural condition (prior to mining activity)	Restore for limited development

AMENITY	POLICY ALTERNATIVE "A"	POLICY ALTERNATIVE "B"	POLICY ALTERNATIVE "C"
Problem Soil Areas	No development	Development permitted where it can meet requirements for public water supply and sewage treatment plus erosion control requirements	Development limited to recreational uses appropriate to the soil type
Agricultural Areas	Main use limited to agricultural but permit limited residential use (1 residential unit per 10 acres)	Mixture of suburban and agricultural use with no restrictions on the amount of each use	Preservation for agricultural use only
Degraded Surface Waters	Total restoration by restricting further development within the watershed and applying both point and non-point source controls	Enforcement of current point source laws plus enactment and enforcement of new non-point source restrictions	Enforcement of current point source laws
Wetland Areas	Low density development with requirements for drainage, sewage, public water supply and solid waste management	No development	Recreational use with preservation of natural state
Flood-prone Areas	Only agricultural use, forest use, recreational use	Residential and commercial development controlled to minimize flood damage	No development

AMENITY	POLICY ALTERNATIVE "A"	POLICY ALTERNATIVE "B"	POLICY ALTERNATIVE "C"
Degraded ground water Areas	Development permitted only with public water supply	Development permitted only with public water supply and public sewage treatment	No development and take measures to upgrade water degradation quality
Critical Recharge Areas	No development	Low density development with restrictions to maintain water quality and quantity	Agricultural, forest, and recreational use
Natural Areas	Public and private acquisition with areas used only for strictly supervised scientific and educational activities	Areas preserved in natural condition and open to general public for passive recreation but with prohibition of permanent structures	Areas preserved in semi-natural condition with modest amount of permanent recreational facilities provided
Scenic Waterways	Waterway and immediately adjacent land restricted to scientific and/or recreational uses	Development permitted along waterway, provided that established water quality standards are met	Both waterway and immediately adjacent land to be maintained in material condition

KEY TO THE ENVIRONMENTAL MANAGEMENT POLICY PREFERENCES INPUT FORM

The three management policies for each Amenity on the Environmental Management Policy Preferences input form are classified according to the differing degrees of stringency required to implement the policy. Each policy requires either maximum, moderate, or minimum stringency.

On the Environmental Management Policy Preferences input form the policies do not appear in any particular order. In this key the maximum policy always appears in the lefthand column. The moderate policy always occurs in the middle column. And the minimum policy always occurs in the righthand column.

AMENITY	MAXIMUM	MODERATE	MINIMUM
Steep slopes	No development	Development limited to contour plowing agriculture and/or forest use	Development limited to low density residential accompanied by requirements for erosion and drainage control and stability control
Geologic problem areas	No development	Development limited to low density residential with requirements for special construction to assure stability, and requirements for public sewerage, public water supply and solid waste management	Development limited to low density residential plus low rise structures for commercial use with requirements for special construction to assure stability and requirements for public sewerage, public water supply and solid waste management
Geologically unique areas	No development	Development only for scientific, educational and recreational use	Limited development with scientific supervision
Mineral resource areas	Place in reserve for strictly controlled extractive operations with restoration to natural (original) condition	Resource extraction with requirements for restoration to natural condition	Resource extraction under strict restriction (performance bonding, etc.) with requirements for restoration which would enable future beneficial use of land but not necessarily to natural condition
Areas disturbed by mining	Restore to natural condition (prior to mining activity)	Restore for limited development	Restore for open space use and other limited development but not to natural condition

AMENITY	MAXIMUM	MODERATE	MINIMUM
Problem soil areas	No development	Development limited to recreational uses appropriate to the soil type	Development permitted but with requirements for public water supply and sewage treatment plus erosion control requirements
Agricultural areas	Preservation for agricultural use only	Main use limited to agricultural but permit limited residential use (1 residential unit per 10 acres)	Mixture of suburban and agricultural use with no restrictions on the amount of each use
Degraded surface waters	Total restoration by restricting further development within the watershed and applying both point and non-point source controls	Enforcement of current point source laws plus enactment and enforcement of new non-point source restrictions	Enforcement of current point source laws
Wetland areas	No development	Recreational use with preservation of natural state	Low density development with requirements for drainage, sewage, public water supply, and solid waste management
Flood-prone areas	No development	Only agricultural use, forest use, recreational use	Residential and commercial development controlled to minimize flood damage
Degraded ground water areas	No development and take measures to upgrade water degradation	Development permitted only with public water supply and public sewage treatment	Development permitted only with public water supply

AMENITY	MAXIMUM	MODERATE	MINIMUM
Critical recharge areas	No development	Agricultural, forest, and recreational use	Low density development with restrictions to maintain water quality and quantity
Natural areas	Public and private acquisition with areas used only for strictly supervised scientific and educational activities	Areas preserved in natural condition and open to general public for passive recreation but with prohibition of permanent structures	Areas preserved in semi-natural condition with modest amount of permanent recreational facilities provided
Scenic waterways	Both waterway and immediately adjacent land to be maintained in natural condition	Waterway and immediately adjacent land restricted to scientific and/or recreational uses	Development permitted along waterway provided that established water quality standards are met

ENVIRONMENTAL VALUE PREFERENCES

(Chapter 4 Public Input Form)

As we have seen in the slide presentation and Chapter IV that there are many environmental amenities and values, or critical areas, to consider in developing a water quality management plan for the study area. During the COWAMP study process, it will be necessary to develop policies for dealing with these critical areas.

While all the described environmental values are important, "trade-offs" between these values will be required. In other words it may be necessary - or desirable - to trade a certain amount of one value to gain a certain amount of another value. Such trade-off considerations will be a key part in formulating the Alternative Environmental Futures (AEF) for the study area. It is doubtful that, we will be able to find one AEF (and its consequent water quality plan) that can satisy all environmental value preferences and also meet low cost criteria. Trade-off decisions will be based on the values that the public places on each environmental amenity or value and the technical evaluations of the impact on water and overall environmental quality.

The attached form is one mechanism for study committee members to express their preferences relative to various environmental concerns. On this form the environmental amenities and valuesdescribed in Chapter IV have been grouped into four major categories: Resource Values, Amenity Values, Ecological Values, and Degraded and/or Hazardous Areas. Each group (column) has been assigned a total of ten points. Please distribute the ten points in each column according to the relative value that _you_ place on the individual items. Do not rank your choices from one to ten, but assign a numerical value according to the degree of emphasis that you believe a particular item should receive. You may place a value of zero to ten on any separate item, but the total for the group cannot exceed ten points, and you must distribute all ten points in some way.

ENVIRONMENTAL VALUE PREFERENCE INPUT FORM

Conservation of RESOURCE VALUE

___Coal Resources

___Other Mineral Resources (oil, sand, gravel)

___Agricultural Land

___Water Resources

___Forest Resources

___Land Resource (for development)

Preservation of AMENITY VALUE

___Recreation Areas

___Geologically Unique Areas

___Historic and Scenic Areas

___Fishing and Boating Areas

___Forest and Game Lands

___Steep Slope Areas

Protection of ECOLOGICAL VALUE

___Water Conservation Area

___Wetlands

___Critical Groundwater Recharge Areas

___Wildlife

___Vegetation

___Natural Areas

Upgrading of DEGRADED AND/OR HAZARDOUS AREAS

___Geologic Problem Areas

___Areas Disturbed by Mining

___Problem Soil Areas

___Floodplains

___Degraded Surface Water

___Degraded Groundwater

___Steep Slope Areas

AMENITY PREFERENCES

We have seen in the slide presentation that there are several areas of critical environmental concern (also called Environmental Amenities) related to water quality planning in Area 8. It is necessary to develop policies for dealing with these areas. During the planning process it may be necessary to place more emphasis on policies for certain areas than for others.

If you were responsible for deciding which areas of critical environmental concern should receive more emphasis in your study area than others, which would you choose?

Please check the ten areas listed which you would consider most important for emphasis. Do not try to rank your choices.

AMENITY PREFERENCES

_____ Steep Slopes
_____ Mineral Resource Areas
_____ Areas Disturbed by Mining
_____ Geologic Problem Areas
_____ Problem Soil Areas
_____ Prime Agricultural Areas
_____ Floodplains
_____ Wetland Areas
_____ Surface Water
_____ Ground Water
_____ Water Conservation Areas
_____ Natural Areas
_____ State Game Lands
_____ Wildlife
_____ Flora
_____ Outdoor Recreation
_____ Flora
_____ Scenic and Historic Areas

APPENDIX C

SLIDE PRESENTATION ON ENVIRONMENTAL AREAS IN AREA 8

Prepared by

Jody Smith

PRESENTATION ON ENVIRONMENTAL VALUES IN AREA 8

INTRODUCTION

There is one part of Chapter IV which we feel merits special consideration. That is the discussion of environmentally sensitive, unique, significant or degraded areas. A Summary Description of the Environmental Amenities and Values was distributed to you in November, and now you have had the opportunity to read the more detailed descriptions in Chapter 4. In our discussions here today, the terms "areas of critical environmental concern" and the terms used in Chapter 4, which are "environmental amenities and values" should be taken to mean the same thing. What is an area of critical environmental concern? In the past several years as more and more study has been made of our surroundings, we have learned that certain types of problems and conditions occur again and again which must be considered in planning for water quality and for environmental quality in general. We have also found ways of dealing with some of these problems and conditions.

But before we can consider how to deal with areas of critical environmental concern, we must know what they are and where they are. For this reason COWAMP has inventoried these areas in Chapter IV.

Today we're going to talk about areas of critical environmental concern in Area 8. Our purpose is to be sure that all of us understand these areas and to see where some of them are. In the next few months, as we begin to formulate Alternative Environmental Futures and scenarios, these areas will be very important.

In the presentation you're about to see, we will generally talk about one type of concern at a time. However, it is important that we keep in mind the fact that all of these problems and conditions interact and that few of them are mutually exclusive.

(Lights Out)

VIDEO	AUDIO
TITLE SLIDE - Environmental Amenities and Values	
STEEP SLOPES	The first area of critical environmental concern we'll talk about is steep slope areas, or land surface with a slope of greater than 15%. Steep slope areas can be considered as both sensitive environmental areas and hazardous or degraded ar depending upon their use.
Photo -- steep slope areas developed showing erosion and landsliding	The major problem with steep slopes is that when they are disturbed by development, the result is likely to be severe erosion. Sometimes the disturbance causes landslides.
Photo -- muddy waterway indicating high siltation and sedimentation	The eroded material eventually makes its way to waterways and causes sedimentation and siltation which are, of course, water quality problems.
Photo -- steep wooded slope being preserved for passive recreation	Although in some cases a steep slope can take certain types of development, if special and usually expensive measures are taken, most steep slopes are unsuitable for uses other than woodlands, wildlife habitat, and some types of recreation.

VIDEO	AUDIO
Maps: Steep Slope Areas	COMMENTARY ON MAP SHOWING STEEP SLOPE AREAS. Within Area 8, steep slopes severely restrict land use in McKean and Potter Counties. Other problem areas are limited to entrenched channels of major rivers, and some small streams.
*GEOLOGICALLY UNIQUE AREAS	Geologically unique areas are of environmental concern and of interest for scientific, educational, or aesthetic purposes.
Photo -- Fossil collector	They include features such as caves, mineral and fossil collection areas,
Photo - McConnellsmill Spring	springs and scenic areas. Only those springs and scenic areas which,
Map: Geological Unique Areas	because of their size or setting, are considered unique are included in the mapping for the COWAMP study. (Commentary on Map of Geologic Unique Areas).
*MINERAL RESOURCE AREAS	Mineral resource areas -- here we're talking about non-renewable mineral resources -- are of critical concern in the Study Area because of both significant economic values and significant environmental factors.

VIDEO	AUDIO
Photo -- sand or gravel extraction operation	Non-fuel mineral resources include limestone, sand, and gravel. Production of non-fuel minerals is generally not compatible with other types of land use during extraction although abandoned quarries and pits can often be converted to recreational, or residential areas, and in some cases solid waste disposal sites. The extraction of non-fuel minerals is important to water quality because problems such as erosion can occur if extraction is not properly controlled.
Photo -- Aerial strip mining extraction operation.	Most current extraction of coal in Area 8 is by strip mining. Surface coal extraction conflicts with many environmental values. Indigenous wildlife and vegetation are displaced or destroyed. Strip mining is compatible with few land uses. Even reclaimed mines are best suited for pasture, recreational, or woodland uses. A potential use for abandoned strip mines is for disposal of wastewater treatment residues. Future planning should recognize areas of potential strip mining sites, and discourage development in these areas.

VIDEO	AUDIO
Photo -- oil well	The third major type of mineral resource found in the Study Area is oil and gas. Fortunately, production of these minerals is usually compatible with many other land uses. Several highly productive deep gas fields have been discovered in Study Area 8 which contribute a substantial portion of the state's total production.
Maps: Mineral Resources Coal Resources Oil and Gas Production	COMMENTARY OF MAP(S) SHOWING MINERAL RESOURCE AREAS
*AREAS DISTURBED BY MINING	The subject of mineral resources leads into a particularly important areas of critical environmental concern, that is areas disturbed by mining.
Photo -- mine spoil area.	Surface mining is not only unsightly as we've already mentioned, but also contributes to other types of problems. For instance, spoil material is often susceptible to landslides.
Photo -- Acid pools associated with mining operation	The most serious type of mine disturbance however -- and this happens with
Photo -- Yellow rocks	both deep and surface mining -- is acid mine drainage. Because of chemical reactions from rocks associated with coal and with water, acid is created.

VIDEO	AUDIO
	When the acid makes its way to a waterway, the water can become highly acidic making it polluted and unusable for many purposes.
Photo -- reclaimed strip mine area (Rycerstown)	Some strip mined areas can be reclaimed or restored. One approach to reclamation is through use of waste treatment sludges which can assist soil stabilization and reestablishment of vegetative cover.
Map: Areas Disturbed by Surface Mining	COMMENTARY ON MAPS(S)
*GEOLOGIC PROBLEM AREAS	Geologic problem areas are also of concern in Area 8. There are three basic types of interrelated geologic problems in the Study Area.
Photo -- damage caused by mine subsidence (house)	Mine subsidence occurs when coal is removed at a relatively shallow depth. After mining is completed, the roof caves in and the land surface above the mine may drop several feet. When mine subsidence occurs, both human lives and structures are jeopardized. Prediction of potential mine subsidence is a problem due to a lack of detailed maps for the numerous abandoned mines in the Study Area.

VIDEO	AUDIO
Photo -- landslide in road cut	Landslides, another type of geologic problem, are frequently caused by failure of man-made cut slopes, as in this landslide caused by the road construction. A third type of geologic problem is earthquake damage. twenty-three earthquakes have been recorded in Pennsylvania since 1900. However, the potential for earthquake damage is slight in Area 8. Geologic problem areas affect water quality management planning because development in general must be restricted in these areas. Such restrictions, of course, include location of pollution control, collection, transmission, and treatment facilities. Care must also be taken in planning development in areas that are unusable when wet. These areas would not be suitable for continuous use.
Maps: Geological Problem Area Abandoned Deep Mine	COMMENTARY ON MAPS

VIDEO	AUDIO
*PROBLEM SOIL AREAS	Problem soil areas are also of critical environmental concern. We have already discussed problems associated with highly erodible soils -- that is sedimentation and siltation. But there can be other problems with soils also.
-WORD SLIDE:	
LITTLE DEPTH TO BEDROCK	If soils have characteristics such as little depth to bedrock. . .
SHALLOW WATER TABLE	a water table which is often close to the surface . . .
POOR PERMEABILITY	or poor permeability which means a poor ability to transmitt fluid, then septic systems will malfunction causing contamination of water. This means that central sewage collection and treatment is necessary in problem soil areas. In general, land use on highly erodible soils should be restricted to low intensity uses such as woodland, wildlife habitat, and certain types of recreation (e.g. hiking, hunting, camping)

VIDEO	AUDIO
Map: Soils Suitabilities for Sludge Disposal Soils Suitability for Spray Irrigation	COMMENTARY ON PROBLEM SOIL AREA MAPS.
*PRIME AGRICULTURAL AREAS	For purposes of COWAMP, prime agricultural areas are those defined as Class One or Class Two lands according to the Soil Conservation Service's classification system.
Photo -- Aerial of croplands	Northwestern Pennsylvania is one of the few areas of the state where such prime agricultural lands have not been significantly preempted by other types of development. Decisions on where to place sewage treatment facilities which will encourage development will be a determining factor on whether such areas remain agricultural or are developed for other purposes.
Photo -- Agricultural Runoff	While we're on the subject of agriculture let's talk a bit about agricultural run-off. When water flows over agricultural areas, particularly when erosion occurs, the water often picks up materials which become pollutants when they reach a waterway. Among these materials are pesticides, herbicides, fertilizers, and animal wastes.

VIDEO	AUDIO
NON-POINT SOURCE (UNCONTAINED)	Agricultural run-off is what is termed a "non-point source" of pollution because it comes from an uncontained area.
POINT SOURCE (CONFINED)	In comparison, a "point source" is any discernible, confined, and discrete
Photo -- Sewer Outflow	place from which a pollutant is discharged such as a pipe, channel, ditch, tunnel, or well. Since we'll be talking about both non-point and point-source pollution as the COWAMP project progresses, we thought it would be a good idea to review the terms here.
Map: Class I and II Soils	COMMENTARY ON PRIME AGRICULTURAL AREAS.
*FLOODPLAINS	Floodplains, or lands adjacent
Photo -- Aerial of Floodplain Area	to waterways which are subject to periodic flooding are also an area of critical environmental concern.
Photo -- channelization for flood protection	In the past, flood protection usually has been structural protection such as dams and levees. Today, however, the emphasis has changed in many parts of the country to what is called non-structural flood protection. These measures restrict development on

VIDEO	AUDIO
	floodplains so there will be less damage from floods.
Photo -- waterway with open space use	Floodplains these days are being used more and more frequently for such things low intensity uses, such as parks and golf courses. Obviously a floodplain during high water is unsuitable for location of wastewater treatment facilities, land disposal of sewage or sewage process residue. Also, storage of material which would be detrimental to water qualities if the materials washed into a waterway during a flood should not be located in flood-prone areas.
Maps: Floodplains	COMMENTARY ON MAPS SHOWING FLOODPLAINS
*WETLAND AREAS	Wetlands, another area of environmental concern consist of marshes, swamps, open shallow waters, and seasonally flooded lands. Most wetlands are in the glaciated section of the study area.
Photo -- Bog Area	Such areas are important in the hydrologic cycle because they act as

VIDEO	**AUDIO**
	storage retention areas during high water periods and then can become water recharge areas during dry periods. Water flowing into a waterway from a wetland area during periods of low flow for the waterway often adds enough water to that waterway to lower the amount of pollution.
Photo -- wetlands with geese	Wetlands also are essential for certain species of waterfowl and animals and particularly for aquatic life and are often termed "nurseries" for both aquatic and terrestrial biota.
Photo -- wetlands being used for boating	Wetlands also provide a scenic and recreational resource. However, wetlands are unsuitable for most types of development including wastewater treatment facilities.
Maps: Wetland Areas	COMMENTARY ON WETLAND MAP
*SURFACE WATER	Surface water is, of course, an extremely important area of critical environmental concern since upgrading and protecting water quality is the primary focus of COWAMP. Study Area 8 contains more than eleven hundred rivers and streams as well as several lakes

VIDEO	AUDIO
Photo — Scenic waterway	and reservoirs. Three types of waters are mapped in Chapter IV. One type are waters which are classified as mine drainage effected, which we've already discussed today.
(Word Slide) EFFLUENT LIMITED WATER QUALITY LIMITED	The other two categories are "effluent limited" and "water quality limited." Since we'll be talking a lot about these two terms in the future, let's take a few minutes to discuss them.
no slide	The Federal Water Pollution Control Act as amended in 1972 -- whose official title is Public Law 92-500 -- requires that waters meet what are generally termed "fishable-swimmable" water quality criteria by 1983. Since various waters are degraded by differing degrees, different measures must be taken to make it possible for the waters to meet the criteria. Streams which are termed "effluent limited" are those which can meet the criteria with minimum treatment. "Water quality limited" streams are those which will not meet the 1983 criteria unless further treatment and controls than

VIDEO	AUDIO
	the minimum are provided.
Maps: Degraded Surface Waters	COMMENTARY ON MAPS SHOWING SURFACE WATER CATEGORIES
*GROUND WATER	Equally as important as surface water is ground water -- which occurs in the saturated zone beneath the land surface. This is an area of critical environmental concern whose importance we sometimes overlook because we cannot see ground water. Ground water is crucial in Study Area B. It provides the sole source of water supply for virtually all the rural population in the Study area plus about 50% of the population which gets its water from private companies.
same slide	In addition, ground water is the source of water for almost 250 industries in Study Area B. Two important things to remember about ground water is 1) that once it is degraded, the clean-up processes of nature may take many years -- sometimes even more than one hundred years and 2) that ground water often makes its way to waterways and then becomes surface water on the

VIDEO	AUDIO
	quality of underground and surface water are tied together. Most instances of reported groundwater pollution are associated with waste disposal and storage operations, or accidental spills of hydrocarbon products.
Photo -- Diagram of Critical Recharge Process	The geologic structure in certain areas is particularly conducive to naturally recharging underground water supplies. Critical recharge zones are those which supply major pumping centers and those which are highly susceptible to contamination.
	Also important, of course, are the actual areas where groundwater is being used for water supply. Care must be taken in both critical recharge areas and areas of ground water use to avoid waste treatment
Photo -- Diagram of contaminated ground water	and disposal practices which could have a negative influence on the quality of the ground water. (Explain slide)
	Areas of known or potentially degraded groundwater also are important. We will discuss these areas -- as well as critical recharge areas and areas of high ground water use -- as we look at the maps.

VIDEO	AUDIO
Maps: Potential degraded Ground Water	COMMENTARY ON GORUNDWATER MAPS
*WATER CONSERVATION AREAS	Water Conservation Areas -- another type of critical environmental concern--
Photo -- McConnells Mill fishing conservation area	are streams and their surrounding land area where special water quality criteria have been assigned to maintain them in relatively primitive condition. One such area is McConnells Mills. In almost all cases, these special water quality criteria apply to waters which would have the characteristics necessary to support a cold water fishery.
*NATURAL AREAS	Natural areas -- another type of critical environmental concern -- fall into several categories such as . . .
Photo -- Naturalist in field	Basic scientific research sites . . . Environmental quality baseline study areas . . .
	Areas used for guidance in land use . . .
Photo -- Birds Nest	Reserves of breeding stock biota . . .
Photo -- Class in field	Outdoor classrooms, and . . .

VIDEO	AUDIO
Photo - Scenic Area	Protected areas of natural beauty. Because of the nature of these areas, preservation of their values can be accomplished by essentially total protection of their biota and physical features. It should be noted, however, that not all sites in the study area are protected; many are privately owned and some publicly owned sites are not completely protected.
Maps: Natural Area	COMMENTARY ON NATURAL AREAS
*STATE GAME LANDS	State game lands are also areas of critical environmental concern because they are an important recreational amenity. Demand for hunting facilities has steadily increased in the past and is expected to increase in the future. More land will be required in the future, especially to satisfy land requirements for big game hunting. State game lands, for the most part, can be considered unavailable for development.
Map: State Gameland	COMMENTARY ON STATE GAME LANDS
*WILDLIFE	Wildlife, particularly if it is a rare, endangered, or threatened species is another area of critical environmental concern.

VIDEO	AUDIO
	One example is the Pergerine Falcon. This bird has not brud in the area since about 1952.
*FLORA (VEGETATION)	Flora, or vegetation, can also be categorized as rare, endangered, or threatened and are another area of critical environmental concern. Recognized within the study area are 3,601 species of flora.
*OUTDOOR RECREATION	The existence of adequate opportunities for outdoor recreation is important to the quality of life and therefore an area of critical environmental concern.
Photo --	Provision of support for recreational activities such as hunting, fishing, boating, and hiking require a high degree of protection or conservation which is usually accomplished by public ownership of lands. A major state recreational area, the Allegheny National Forest is located in Study Area 8.
Maps: Recreation Areas	COMMENTARY ON MAPS SHOWING RECREATIONAL AREAS

*SCENIC AND HISTORIC AREAS	Scenic areas -- although they are difficult to define -- are another area of environmental concern. Scenic areas of particular interest to CONAMP are those waters which are candidates for inclusion in the Pennsylvania Scenic Rivers system.
Photo -- Scenic Stream	The CONAMP inventory has also identified historical sites and properties of state and national significance including Drake's Well, Pithole, Johnstown Tavern
Map: Historic and Scenic Areas	COMMENTARY ON SCENIC AND HISTORIC AREAS

CONAMP END SLIDE